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ABSTRACT

A project to develop a school within a school at the Model Secondary School for the Deaf is described. It is explained that 20 students were scheduled for the minischool for 14 to 17 hours per week of flexible grouping according to needs and styles of learning. Interdisciplinary teaming formed the backbone of the program. Five chapters concentrate on the minischool's core curriculum, with units on "humanself," communities, people and the environment, government, and change. Objectives, suggestions for classroom management and ideas for curriculum and instructional strategies are presented for each unit. The skills curriculum in such areas as language arts, structured writing, and mathematics is described. Detailed evaluation findings for the program are provided, with one conclusion being that the minischool Ss tended to demonstrate greater measured growth than comparison Ss, particularly in affective areas. (CL)

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MINISCHOOL
REPORT OF A TWO-YEAR EXPERIMENT IN INTERDISCIPLINARY TEAMING

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Introduction

In 1973, a group of MSSD teachers and counselors developed a proposal for an alternative student management system at the Model Secondary School for the Deaf. These faculty members felt that the system they proposed represented a viable alternative to the existing system by offering a comprehensive, individualized program for students.

Their proposal resulted in a two-year experimental project called "Minischool," the structure of which was based on the School-Within-a-School (SWS) concept. The primary focus was on students: their strengths and weaknesses, affective, and instructional needs. The primary aim was to involve students in setting both short and long-range goals. This was to be accomplished by having a group of teachers, a counselor, and a coordinator work as a team to bring different perspectives to bear on crucial decisions about and for students.

The team was able to schedule academic and affective activities for students based on both individual and small group needs. It was able to try different ways of managing students' time and to select different criteria for student groupings based on needs and styles of learning. In addition, by acting as a team, the teachers were able to concentrate attention on the special and individual needs of each student.

The teachers were from four distinct academic backgrounds: social studies, math, communications, and English. Each was responsible for his or her content expertise. Together, they tried to provide an integrated and relevant program.

Twenty students, representing the wide range of abilities within the MSSD population, were selected for the study. They were scheduled into the Minischool for 14 to 17 hours a week. During the remainder of the time, they

were enrolled in elective courses in the "regular program." Although the Minischool teachers had no control over the elective time, they were able to provide information that was helpful in planning students' programs.

Here are some specific examples of the process: Each teacher assumed the advisory responsibility for five students. He or she met regularly with these students to set goals, review, modify, and evaluate goals, and discuss progress and expectations. These advisors were responsible for keeping records on these students and maintaining contact with parents.

The counselor worked with the teachers throughout the planning process. She also planned large group, small group, and individual counseling activities. The counselor related many of the group activities to various parts of the curriculum content. The teachers were participants in many of the group activities. In addition, the teachers were able to reinforce the affective activities and emphases in the academic classes.

Each week, the teachers, counselor, and coordinator met to discuss the progress of one or two students in detail. The advisor brought information about goals which had been established with the student, information from parents, and any information about the students in their activities outside the Minischool. The counselor discussed problems the student might have which could be helped by particular action by the teachers and would suggest various actions which might be taken. The other teachers shared information about the student's performance in particular content areas, and made suggestions for improving or strengthening concept development.

At the end of the conference, the group would suggest new goals for the students and decide how each team member could help them meet those specific goals. Sometimes, different placement in groupings or independent activities were suggested.

The resident advisors were sometimes included in the staffings on dormitory students, which made it possible for the teachers to learn about and reinforce any special programs that the dormitory staff had set up for students.

The team was also able to provide comprehensive information about students' interests and abilities to the work study program and to recommend types of jobs the students should experience.

Parent contacts were frequent and took the form of phone calls, extensive progress reports, and individual conferences. The parents knew whom to call for information and were free to bring questions and concerns to the staff at any time.

At one point during the two years, the students were asked to indicate what content areas they wanted "more of" or "less of" and what changes in counseling they would prefer. Upon receiving this information, the team was able to make adjustments to meet many of the needs expressed. For a time, the students were given the opportunity to evaluate their daily experiences in the Minischool.

Auditory training and communication skills were stressed and reinforced daily by all the staff. Although the communications teacher provided the direct therapy, the team approach made this aspect an important part of the total program.

Student attendance problems were dealt with immediately. Attendance problems were reduced very soon after the Minischool was established and continued to be slight within the program.

Other kinds of disciplinary problems were solved by the team as well. Team management was found to be especially valuable for this purpose, for it provided a variety of opinions and insights.

The coordinator functioned as a facilitator and leader of the team. She

participated as a team member in policy and procedure decisions as well as student staffings and goal setting. The coordinator also maintained contacts with the parents and set up and maintained the formal communication channels between the Minischool and the MSSD faculty and staff.

Impressions of Participants

Richard Lytle: The single most important reason for reading this report is that it is the story of twenty-one students and six faculty members and two and one-half years of their lives. It is a story that could perhaps provide the basis for other people, like yourself, to be intensely involved in the development of individual human beings, students and teachers, and have the rewarding experience we have shared at MSSD.

Without a doubt the Minischool experience represents the fastest two-and-a-half-year period of my life. From the first day in March of 1974 when we met "our" students in a small and chaotic portable classroom to the last day in March of 1976 at the farewell party planned and presented by the students, it was an intense and rewarding experience.

The Minischool had its ups and downs. We planned with such precision and detail for that first day of class and within a few weeks we knew that we had made some incorrect assumptions in our planning...that was a down time. But then there was the joy of knowing that we were in this together and the "downs" would be shared and attacked by the group. We had those days that we were unsure of ourselves, when it seemed as if we would never "reach" some of our students. Then there were the days when our students picked us up off the floor and recharged our batteries.

There was the time early on in the Minischool when the most capable person of narrating the sex education film and answering the ensuing questions was Tyrone, a student, and he never stopped grinning. Then there was the day when we were supposed to be showing the students how to type blood and the teachers had more good reasons not to test their own than the students.

We took trips together to the big cities of New York and Boston...and looked wide-eyed down the subway platform late at night and stood real close together. We went to a fancy eatery in New York and the four boys ordered the most expensive hamburgers known to Man. There was the trip to Lancaster, Pennsylvania where the students interviewed a Mennonite farmer whom they thought was really different with his horse and buggy, house without electricity, and his black beard and kind smile. The farmer, on the other hand, thought that we city folk, talking with our hands and with our best pair of shoes standing in the middle of his barnyard manure, were some of the most "different" people he had seen in some time.

The Minischool was a place that I knew I was welcome in. Even on those days when I might have preferred to have pulled up the covers and stayed home, the students picked me right up by taking an interest in me! It's pretty hard

not to be close to students and vice versa when one shares an intense feeling of caring.

Perhaps my experiences can't be exactly duplicated by others, and perhaps that should not concern us, but I do believe that these feelings of satisfaction can be shared by those engaging in similar programs of intensity.

Maybe we had an extra special group of kids...but I think you would find that our kids were pretty much like all people; they respond when they know that people really care about them as individuals and interact with them with respect. I know that I responded to that demonstration of caring and warmth.

I hope you enjoy our report and take a little bit of it with you to your experiences in schools.

> Ruth Ann Sussman: A new swimmer suddenly found herself swimming and spent most of her energy on the immediate need to swim. The water was, at various times, refreshing, tiring, bouying, and frustrating. With the aid of other experienced swimmers, she reached the shore and looked back. "So that was the English Channel," she said.

I remember...

...in the beginning when I sat with the Minischool team around the table, hearing the words "enabling objectives," "TPO's," "evaluation and measurement," and so forth, without the faintest idea of what they were talking about.

...encouragement from the coordinator when I felt inadequate in some areas of work early in the Minischool term.

...on my part, the hard-to-control laughter when the students "reacted" to our planned stimuli and their incredulous disbelief when they were told that it had all been planned. The light of understanding in their eyes when I pointed out their reactions.

...the disappointment when we faced the reality of our inability to handle a certain student's lack of cooperation.

...the warm glow shared by all of us in a late-night rap session held at a farm after a day in the Amish country. The long walk down Fifth Avenue in New York City, gaping at wonderous sights.

...the courage of a student who stood his ground alone in a group discussion, although opposed by all of the others.

...some sleepy and some rapt faces during current events periods in the mornings and some sharp discussions afterwards.

...pleasure at seeing some evidence of positive effects in students such as their being more analytical, curious, more together, more tolerant of others' shortcomings, and more open.

...my satisfaction at knowing I was growing professionally during the two years from working with these people, with the coordinator, and especially, with the Minischool students.

...the satisfaction of being a member of the Minischool team where all ideas, advice, feelings, and experiences were heard and shared.

...the pleasure of seeing students helping a student with her problems in a group counseling session, teamwork on several group activities, empathy shown by some students towards others, some glowing and sometimes embarrassed looks on faces when hearing positive things about themselves in group discussions.

...knowing we had done well when the Minischool students said they missed the close and individual attention in the Minischool and when they said that they felt they had learned a lot there!

An environment which people find relaxing, positive, and unthreatening is also one in which they can open up, reach out, learn about themselves and the world around them. The Minischool offered such an environment. In the beginning, the students needed time to feel relaxed with the people in the Minischool. In time, they became aware that we, the team, wanted to expand their positive qualities. In the end, many students had learned more about themselves and about getting along with others. They were more curious about the world around them. And they were sorry to see the Minischool end.

Moose (a student): The idea of the Minischool, at the Model Secondary School for the Deaf, is like a Italian town in New York City. The Italian town has people of various believes. They could fight each other or just be themselves.

We got 20 students in the Minischool. It has about 30% of MSSD's students. They are all different. We had to stay together for 2 years.

I joined and learned with different students such ghetto to country residents, and moron to intelligent students. I hated to go to school and learn along with students which I call "morons." I wanted to learn on my own pace - But I learned about others' opinions, habits, the city, others experience, and many more which aren't related to English, Math, or History subjects. It could be a part of Social Studies or Science.

I learned how to stand alone against a whole group and I learned how to be myself. I was in a lot of arguments about Nixon, World War III, etc.

I learned about cities and the government systems. I went to Boston, Crisfield, Md., other places near here.

I would like to thank the Minischool teachers a lot for my experience, work, and understandings of the social life, behavior, and even myself.

If I was put in a group of students who got the same knowledge of science, math, social studies, and English, I would learn more in these. I'm saying

this because I had slowed down in my work because of other lower students and I had no spirit to push my work up.

It is important to learn to survive, understand, and get ready to face the "jungle," which I mean the hearings.

Annonymous Student. The Minischool was very helpful to me. I learned a lot of things from this 2-year course, which helped me improve my: Reading skills, writing skill and my vocabulary skills. I couldn't of had learn this much from any other place I could think of. Best of all class was a riot when we got down to some serious business and I am happy that I came to this program.

Summing Up

We trust that this prologue has stimulated your interest and set the tone for a detailed description of the Minischool program. We feel it is necessary to stress that primary consideration throughout this report should be the management process which was employed. The structure of the management process or SWS model allows for any number of types of teaching strategies, curriculum emphases, and materials. Because of this management structure, student schedules, management of time, teaching strategies, and curriculum undergo constant review and evaulation and have the flexibility to change as the students grow and change. The report has been arranged chronologically so that these changes and the rationales for the changes may be traced.

The attention to all the needs of the student (the "total" human being) was of utmost importance and is reflected both in our affective objectives and in the student, teacher, counselor relationships which developed. Personal growth definitions are elusive and somewhat subjective. However, we would like to share our definition as developed by a team of MSSD staff which is based on the theories of Rodgers, Kohlberg, Turiel, Maslow, Carkhuff, and Berenson. Their philosophies suggest to us that personal growth is not a goal that can be successfully approached by writing a new course or even by establishing a new department.

The personal growth goals of the MSSD can only be fulfilled when the entire MSSD community is involved and committed to moving

> ...toward being persons who accept and even enjoy their own feelings, who value and trust the deeper layers of their nature, who find strength in being their own uniqueness, who live by values they experience.[1]

> The whole MSSD community, administration, faculty and staff, must be committed to growth so that the students feel an intrinsic motivation to change as a result of the commitment of the people around them.[2]

One note of caution: as you read the report, you may feel that we had the "ideal" conditions and therefore any attempt to duplicate our program would be a waste of time. We suggest that you read with the assumption that many ideas and concepts could be adapted for your use. We also urge you to read the recommendations in the last section of the report; the ideas there should be helpful in your search for better ways to meet student needs.

Overview

In May, 1969, an agreement was signed between the Department of Health, Education and Welfare and Gallaudet College which authorized the establishment of the Model Secondary School for the Deaf (MSSD). In the agreement: two global objectives were outlined for the MSSD:

1. to serve as a laboratory for education experimentation and change by developing and validating innovative management and instructional models designed to prepare deaf adolescents for post-secondary and/or vocational pursuits and to provide deaf adolescents the skills necessary to become effective members of the society;

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[1]Rodgers, C. Learning to be Free. Paper given to a session on "Conformity and Diversity" in the conference on "Man and Civilization" sponsored by the University of California School of Medicine, San Francisco, June 28, 1962.

[2]Lytle, R. (chairman) An Interim Report of the Personal Growth Strategy, Phase I. Washington, D.C.: Model Secondary School for the Deaf, March 8, 1976.

2. to disseminate working models throughout the field of education of the deaf in order to have an impact upon the education of the more than 60,000 deaf students in schools and programs, their parents, and the 10,000 professional persons in education of the deaf and related disciplines.[3]

The activities of instruction at the MSSD are seen as inseparable from the activities of other major elements of the school (e.g., media, residence program, social work, evaluation), and each element is a major and valuable contributor. Staff from any element within the MSSD is encouraged to be involved in development, refinement, and evaluation of program models which are relevant to the goals of the MSSD.

One such staff-generated program was proposed by a group of five MSSD staff members in the summer of 1973. The group, composed of one communications specialist, a counselor, the coordinator of admissions and records, a social studies teacher, and a math teacher proposed a two-year pilot instructional system which was "intended to provide an integrated, interdisciplinary, self-contained, and personalized education for students."[4] The model conceptualized for the trial program was a school-within-a-school format or, as the authors of the proposal suggested, a "Minischool." The Minischool proposal included a detailed rationale, objectives of the program, a plan for implementation of the project, including a staffing pattern and descriptions of job responsibilities, and an evaluation plan.

Rationale for the Minischool

The Minischool planners based their model on the following definition:

A stimulating educational environment is one which:

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[3]Hicks, D. Revised Statement of Philosophy and Goals for MSSD. Washington, D.C.: Model Secondary School for the Deaf, May 13, 1974.

[4]Chewning, B. et al. Proposal to Conduct a "Minischool" Research Project. Unpublished manuscript, The Model Secondary School for the Deaf, 1970.

1. presents students with ideas and concepts from different perspectives and where students are encouraged to make independent judgments and conclusions about these ideas and concepts;

2. encourages students to develop a heightened sensitivity to each other and the world around them and to cooperate, not compete, with each other;

3. enables students to feel a sense of daily progress and helps them set their own goals.[5]

The Minischool was proposed as one mechanism - not necessarily the only one - which might provide a vital curriculum through an interrelationship of disciplines, policies, and interpersonal experiences and which might allow students to develop self-confidence, self-control, maturity, and self-perception along with knowledge and skills. The Minischool or school-within-a-school model was selected over other models becuase of its relatively greater emphasis on individualizing student experiences through interdisciplinary team management. A selected group of faculty was to assume full responsibility for planning, developing, implementing, and evaluating an interdisciplinary, integrated educational program for 20 students over a two-year period.

Minischool Objectives

In terms of overall expectation for the Minischool program, five global objectives were proposed relating to affective development, academic achievement, communication skills, and cognitive skills of Minischool students. These objectives were:

1. Minischool students will develop realistic and positive self-concepts which will enable them to master the skills of self-assessment and goal setting.

2. Minischool students will exhibit greater awareness of their values in relation to those of society.

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[5]Op. Cit., p. 2.

3. Minischool students will show improvement in receptive and expressive communication skills.

4. Minischool students will advance beyond entering level knowledge of specifics, knowledge of ways and means of dealing with specifics, and knowledge of the universals and abstractions in an academic field as defined by Benjamin S. Bloom.[6]

5. Minischool students will improve in the cognitive developmental areas of comprehension, application, analysis, synthesis, and evaluation as defined by Bloom.

Each of the global objectives was further defined in terms of operational and measureable outcomes. Procedures for evaluating self-concept, communication skills, and cognitive skills are provided in the evaluation chapter of this report.

Minischool Implementation

Implementation of the Minischool was accomplished in four sequential phases:

1. Staff selection, summer, 1973

2. Pre-release planning, September-October, 1973

3. Pre-Minischool program development, October, 1973 - March, 1974

4. Minischool, March, 1974 - March, 1976

Staff Selection: As initially proposed, the Minischool team was to consist of a coordinator, four teachers representing the major academic disciplines, one counselor, and a linguist, and was to be selected from existing MSSD staff. Applicants for the Minischool team were evaluated on the basis of professional experience, educational philosophy, organizational and leadership ability, experience with and/or ability to employ the teaming approach, curriculum development experience, and communication skills. (Job descriptions for each

[6]Bloom, B.S. (ed.) Taxonomy of Educational Objectives: Handbook I: Cognitive Domain. New York: David McKay Company, Inc., 1956.

Minischool position are available upon request.) The counselor assigned worked half-time with the Minischool and half-time with another program. The counselor was administratively responsible to the Director of the Division of Pupil Personnel Services. (The linguist's position was eliminated from the MSSD budget.) In addition to the responsibilities described in the proposal, the coordinator was also responsible for three academic departments in the MSSD.

Staff selection for the Minischool was completed in early September, 1973. Two of the staff selected were members of the original proposal team.

Pre-Release Planning: After Minischool staff members were selected, but before they were released from their current professional obligations, they met informally every day to discuss teaming techniques, to gather and share material, and to plan curriculum and logistics.

Pre-Minischool Program Development: On October 15, 1973, the Minischool staff was released from other MSSD responsibilities in order to devote full time to planning, organizing, developing, and implementing the Minischool instructional program. The first major activity during this phase of the project was the examination of a variety of curriculum materials in order to identify, adapt, or develop curriculum for the Minischool. The purpose of the Minischool curriculum was to provide a learning process which would develop affective and/or cognitive skills in the areas of reading, defining, organizing, communicating, problem solving, and evaluating. After examiniation of a wide range of available curriculum materials, a six-unit, two-year interdisciplinary curriculum with a social studies focus was decided upon.

The social studies base for the curriculum was selected for several reasons. Because the Minischool was designed with a basically humanistic orientation, it was generally felt that a social studies-based curriculum was most consistent

with that point of view. In addition, the Minischool staff found numerous relevant existing social studies curriculum materials which they felt could be adapted or modified. A third major consideration in selecting the Minischool curriculum plan was the relative ease with which affective and cognitive skills and activities could be integrated. Further, the staff felt the major subject area skills could be more rationally integrated with such a plan. Also, the affective goals of the Minischool were more directly relevant to social science.

The scope and sequence as originally developed by the Minischool staff can be conceptualized as a series of concentric circles with self at the origin (Figure 1) and expanding to People Interacting with People, People and the Environment, People and Government, People and Culture, and finally, People and Change. The sixth and final unit of the curriculum was intended to summarize and tie together the entire Minischool experience under the topic Change. Table 1 outlines the six units and the underlying generalization of each.

In addition to planning the entire Minischool curriculum, staff was also involved in planning student management techniques, logistical considerations, and notifying students and parents. By the starting date of the Minischool on March 18, 1974, the first unit, Humanself, was complete; the second unit, People Interacting with People, was approximately 25 per cent complete. Management techniques and timelines were established, operational plans were complete, a communications policy was written, and teaching space located and furnished. Among the other tasks completed by the team were:

> identification and completion of staff development activities necessary for the program;
>
> determination of the affective areas which we could actively influence and how the teachers and counselor would interact in dealing with these;

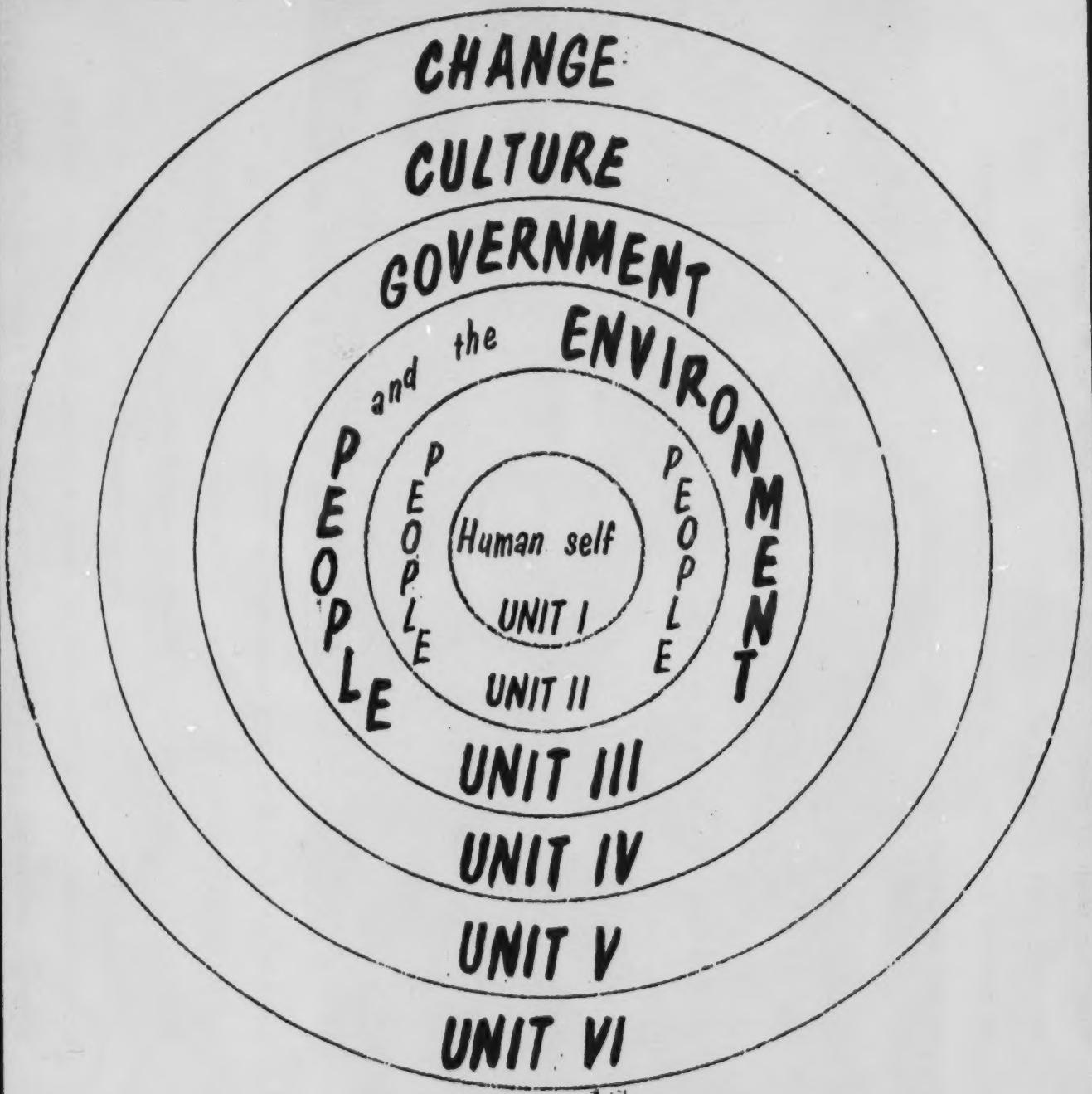

Figure 1. The scope and sequence of the Minischool curriculum

Table 1

Outline of the Minischool Curriculum

	Unit	Underlying Generalization
1.	Humanself	Man has a unique identity which differentiates him from other members of his species. Man also shares common characteristics with other living things.
2.	People Interacting with People	While people are individuals, they are also members of more than one group. These individuals and groups are interdependent on each other for satisfying needs, influencing behavior, and effecting change.
3.	People and the Environment	There is a constant interaction and reaction between man and his physical environment: how man uses the environment will determine what the future will be like.
4.	Government	Governments are formed to satisfy society's needs.
5.	Change	Man's way of living is not static; changes occur in every facet of man's living and are affected by both man and his environment.

determination of an initial student management system;

determination of an initial method of reporting to parents;

establishment of working relationships with the other divisions in the school;

determination of scheduling patterns which insured that the students received the necessary instruction in math, language arts, social studies, and elective subjects.

An orientation meeting with the parents of students selected for the Minischool was held on March 12, 1974. Each of the eleven parents attending the meeting received a copy of the Minischool proposal and discussed the plans

for dealing with the affective and cognitive areas to be addressed by the Minischool curriculum. The parents who were unable to attend were sent copies of all the materials shared at the meeting. The contacts with parents indicated that they, too, felt the excitement of attempting a new instructional approach. Communication with the parents continued via progress reports, frequent telephone contacts, and individual conferences. During the summer of 1975, additional conferences were conducted with some of the parents. Individual conferences with all of them were not possible; however, the vital importance of such contacts was recognized.

A meeting with the Minischool students was also held before the program began at which the overall program was described and the roles of the teachers, counselor, and coordinator were explained. Because this was the first program at the MSSD to have a coordinator, the role of this person was unfamiliar to the students and raised questions in their minds. Any questions which students raised were discussed and answered.

Minischool Scheduling: On March 18, 1974, the 20 students selected[7] for the Minischool met for the first day of their two-year Minischool experience. Figure 2 was used to help explain their schedule to them. Students were scheduled into the Minischool for 14 to 17 hours per week, an arrangement which allowed each student to select two elective subjects and physical education in addition to the Minischool. While all 20 students were scheduled into the Minischool at the same time, they were not all doing the same things at the same time. The program was planned to be highly individualized so that some students might be engaged in off-campus activities, some in specialized "courses"

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[7]Student selection procedure is outlined in detail in the portion of this report which deals with evaluation procedures.

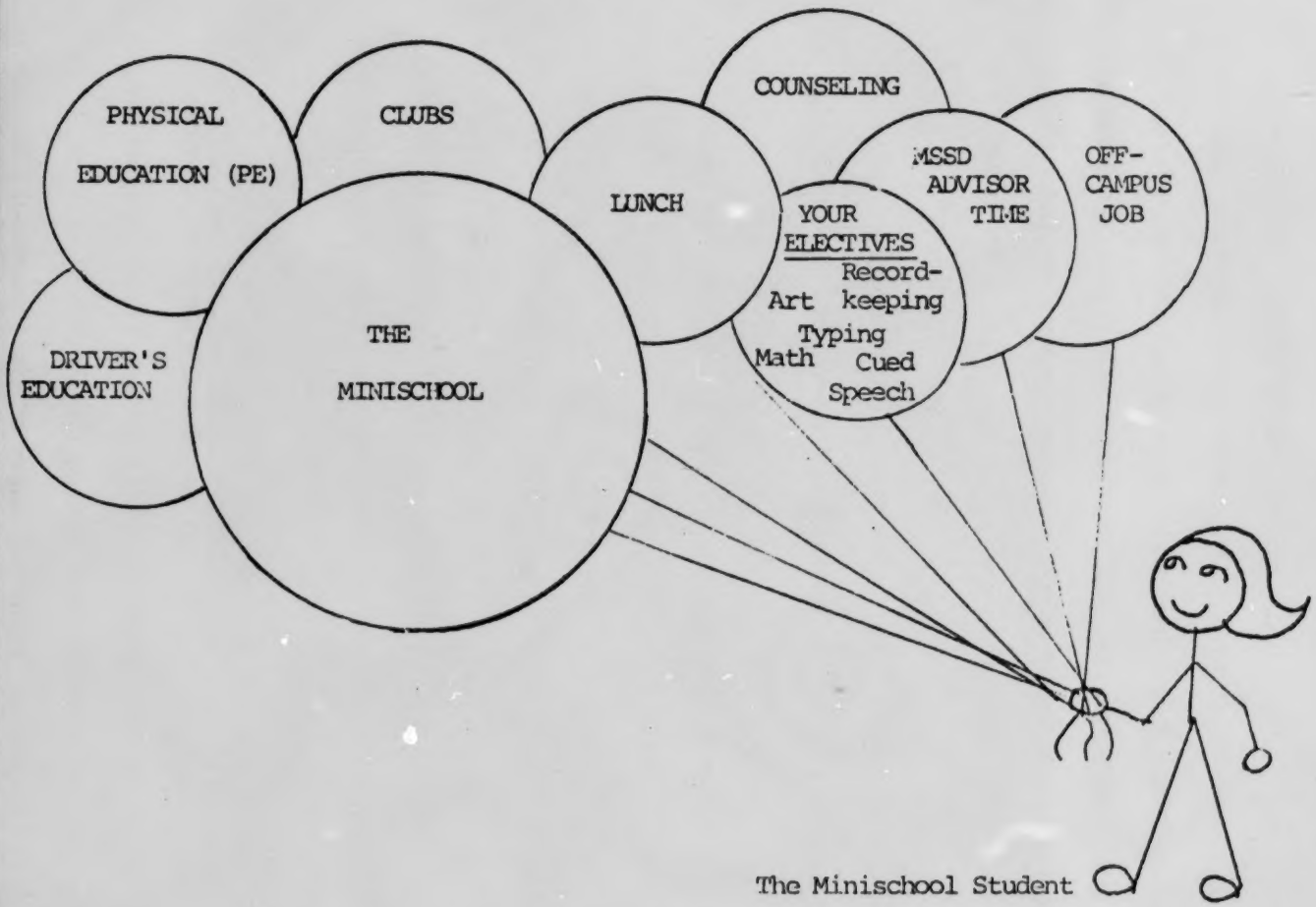

Figure 2. Inside the Model Secondary School for the Deaf

based on need, some in independent projects, and still others in highly structured tutorial situations.

It should be noted that the Minischool staff did not have coordination of the the students' complete program. Because the elective teachers were not a part of the Minischool, all scheduling of electives, physical education, and other special activities determined to a large extent the Minischool schedule. For a time, the Minischool was scheduled from 9:15 - 12:30 daily. Later, it was scheduled from 9:15 - 12:30 on Monday, Wednesday, and Friday and from 12:30 - 3:00 on Tuesday and Thursday. (See Figure 3 for a sample Schedule.)

During the Minischool time, many scheduling variations were possible. For example, some activities mignt be scheduled for only 30 minutes while other activities might be scheduled for two hours.

The schedule arrangements will receive further comment in the recommendations. There was a great deal of flexibility and the staff was able to reschedule on a daily basis as it became necessary or desirable.

In addition to the 15 to 17 hours of teaching responsibility, Minischool staff members were also responsible for and engaged in diagnostic planning for their students, lesson preparation, and curriculum development of subsequent units. The term "curriculum development" as it relates to the Minischool does not mean lesson planning, but rather development of the total package from objectives to selection, adaptation or production or instructional materials, to design of learning activities, to identification of acceptable performance criteria for several different skill levels. Providing assistance in this development was one instructional design specialist.

Physicial Space: During the first ten weeks of the Minischool, all 20 students and 5 staff members were jammed into a portable classroom, the dimen-

sions of which were 34' X 24'. We were using borrowed furnishings and were obviously crowded. As you will see in the description of the Unit 1 curriculum, this crowding dictated some of the student management and teaching strategies employed.

We then moved into a larger portable classroom 38' X 28" and were able to arrange the room into various discrete areas depending on the nature of the activities. This room had two partitions at one end which were used for individual counseling or for individual student work. It was the only truly "private" space in the room.

The remainder of the room was open space set up basically for four distinct teaching areas. It was also arranged for large group activities at times. There were also areas for individual student work or for "rap sessions."

Although this was also rather cramped and noisy at times, we feel we were able to demonstrate a number of ways in which space can be utilized in a flexible way.

Advisor System: Although each Minischool student had an academic advisor in the "regular school," each of the Minischool teachers assumed advisory responsibility for five students in order to facilitate the monitoring of progress, identification of needs, and establishment of goals for each student. Special weekly staff meetings were established, at which time two students were discussed in detail. Attempts were made to keep the non-Minischool academic advisors informed as to the results of these staff meetings either through their participation in them or through discussions with them. The academic advisors also received a copy of all progress reports. Despite such efforts at communication with the advisors, the results were not always satisfactory. Discussion of possible improvements is to be found in the recommendation section of this report.

Monday (GP works)

9:15 - 10:15	Government
10:30 - 11:15	Language Arts
11:15 - 11:45	Structured Writing I, II, Algebra, News
11:45 - 12:15	Structured Writing III, IV, News

Tuesday

12:30 - 1:30	Government
1:45 - 2:30	Math, Language
2:30 - 3:00	Structured Writing I, II, Algebra, News

Wednesday (RV, SK, KJ, WB, JB, MB - work)

9:15 - 10:00	Language Arts
10:30 - 11:15	Math, Language
11:15 - 11:45	Structured Writing I, II, Algebra, News
11:45 - 12:15	Structured Writing III, IV, News

Thursday (TW works)

12:30 - 1:30	Government
1:45 - 2:30	Math
2:30 - 3:00	Structured Writing I, III, News

Friday

9:15 - 10:15	Government
10:15 - 11:00	Math
11:15 - 12:15	Affective Activity

Figure 3. Weekly Schedule for Minischool Students

Unit IV - Government

GOAL ATTAINMENT

Name _____

Goal Area _____

Date _____

Goal Heading (Weights)	Most Unfavorable Outcome (-2)	Less Than Expected Outcome (-3)	Expected Outcome (0)	More than Expected Outcome (+1)	Best Expected Outcome (+2)	Deadline for Evaluation

Table 2. The initial Goal Attainment Scaling System (GAS) used for goal setting.

The initial method of goal-setting was a structured Goal Attainment Scaling System (GAS). Table 2 shows the format for the GAS.

The GAS system was adapted from the scaling system developed by Thomas Kiresuk, Robert E. Sherman, and Susan E. Salasin at the Hennepin County Mental Health Center in Minneapolis. In their system, specific behavioral goals are set for each patient and deadlines are established. Treatment then takes place and the degree to which the goal has been reached is rated on the scale, thus providing the clinician with a measure of the success of treatment.

It was a simple matter to adapt the GAS for Minischool purposes. Initially the students sat with their Minischool advisors and decided upon goals, both affective and cognitive. Follow-up meetings determined whether or not students had met their goals--or missed them or exceeded them. Later the teachers in the core curriculum classes worked with the students on the GAS. Both students and teachers liked the plan. The students felt that it kept them organized, and gave a very explicit picture of degrees of personal success or failure. Recommendations about the GAS will be found later in this report.

Teaming: The development of a coordinated team effort is critical to the success of a program such as the Minischool and is also one of the most difficult aspects. While the Minischool did use some team-teaching strategies, the main team effort was in planning and information sharing.

The week began with a highly structured "priorities of the week" meeting which outlined activities and tasks to be accomplished each day. These tasks were then recorded according to timelines for accomplishment, modifications necessary, and reasons accomplishment was not achieved. During the first three months, the Minischool team met daily. As team members became more comfortable with each other and with the program, the need for this kind of structure

diminished. During the next two months before the beginning of classes, formal meetings were held two or three times a week. It was also during this time, with the focus on curriculum development, that crucial informal meetings and communication began. For the next fifteen months, the team met twice a week, and during the last six months, only once a week.

During the last six months, informal meetings became less frequent, leading to some feelings of anxiety among team members, and concentrated efforts were made to plan time together more frequently.

Roles of the various team members changed as the program developed. As strengths were identified, different persons began to take leadership in particular areas; for example, at the beginning of the program the English teacher began purchasing books for the classroom bookshelves. Later, the math teacher became fascinated by publishers' catalogs and began selecting the books for pleasure reading.

Throughout the program the coordinator functioned as a team member, and decision-making was normally done by team consensus.

One factor which was felt to be significant in facilitating the development of informal communication was that team members, including the coordinator, shared office space. This close proximity of staff work space is highly recommended for future teaming efforts.

One unforeseen problem arose: complaints from other faculty members concerning our "isolation." A meeting was held with the other teaching faculty so that people might have the opportunity to voice their concerns and get responses from the Minischool team. As one might again expect, most of the concerns revolved around not knowing what the Minischool team was doing. Some faculty members had not read the proposal and therefore had no idea of the scope of the task. The team agreed to make the proposal available again and

also agreed to send monthly reports to all faculty in order to keep them up to date on Minischool activities and objectives. Included in these reports were the team's list of things to do and the timelines for accomplishing them.

Problems of Discipline: It was agreed that the coordinator would be the "last resort" authority in disciplinary action although decisions regarding actions would always be discussed by the team. This procedure follows the philosophy of personal growth which is defined in our introduction. We found the team approach to disciplinary action far more satisfying than previous methods, for several reasons:

1. Many times one team member would have relevant information about a particular situation which would have direct influence on the decision.
2. For any given student or situation, one team member might be more effective in dealing with that student than others.
3. Both parents and students were involved in the decisions as to what actions would be taken.
4. The students knew that the team would take action based on individual needs and problems.
5. Students also knew that all of the team and his/her parents were involved so there was little chance of misunderstanding or of differing stories from different sources.
6. The students also felt that we cared about their individual problems and needs and knew that we would follow through.
7. The team was able to catch problem symptoms and "treat" those before crises developed.

Summary: The concept of a team was extremely important. When the group sat down to write the core curriculum, each member was able to contribute a particular kind of expertise and a unique point of view. It seemed to us that this interaction produced a whole that was more than the sum of its parts. In the classroom, an unusual group dynamic prevailed. The students recognized us as separate peronalities, of course, but soon realized our mutual commit-

ment to the same objectives. Eventually, we felt, most of them developed the same objectives for themselves and, in a sense, became part of the team.

The Core Curriculum

The next five chapters will describe the Minischool's interdisciplinary core curriculum.

The writers of the Minischool proposal emphatically believed in the value of team teaching an interdisciplinary curriculum. They strongly felt that this approach would result in greater cognitive development for the students. Their proposal denounces what Neil Postman and Charles Weingartner call "the vaccination theory of Education:"

> English is not History and History is not Science and Science is not Art and Art is not Music, and Art and Music are minor subjects and English, History and Science major subjects, and a subject is something you "take" and, when you have taken it, you have "had" it, and if you have "had" it, you are immune and need not take it again.[8]

The proposal writers were sure that English was indeed history, and history was art, and that it would be possible to set up an academic framework in which students would be able to transfer information, skills, and methods from one discipline to another. The students would see that a discipline is not an isolated, artificial entity set up to be "taken". Instead they would become aware that all disciplines are interrelated and should be approached with the same attitudes and thinking skills. They would also understand that what they were studying in school bore relationship to their personal lives.

In their proposal the writers said:

> ...we can see our students becoming independent appraisers of information, analyzers and evaluators, to a degree, of the social scene, of the political scene, and of the forces affecting their lives. We see them better informed citizens; we see them as community participants; we see these things as a direct

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[8]Postman, N. & Weingartner, C. Teaching as a Subversive Activity. New York: Delacorte Press, 1969, p. 21.

result not of courses, not of units, not of tests, but because we will establish some relation between academic (school) life and reality.[9]

All of the Minischool team members participated in the writing of an interdisciplinary core curriculum that they hoped would help to accomplish the goals of the proposal.

Unit 1: Humanself

The theme for Humanself, the first unit of the core curriculum, was selected for a number of reasons. First of all, we knew that the topic of greatest fascination for any group of adolescents is themselves. There is, of course, a very good reason for this: adolescence is a painful time, and in any teenager there is a very great need for self-exploration and definition. We felt that there was no better way to help students with their quest for identity than to offer them a unit which would study the physical and psychological characteristics of human beings and would have as its underlying generalization:

> Man has a unique identity which differentiates him from other living things and from other members of his species.

Another reason for choosing this topic was that we wanted to start with something familiar to all students. We also felt that the affective activities inherent in a study of personality would give students and teachers an opportunity to know each other better.

Finally, the theme of Humanself was the necessary first focus for the other concepts we wanted to teach: the role of individuals in their relationship with groups and communities, with government, culture, and change.

The Humanself unit covered four major areas: Human Characteristics, Movement and Support, What Happens Inside Your Body, The Brain and the Senses. It was planned without any knowledge of the students' skills and academic

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[9]Chewning, et al., op. cit., p. B-1.

experiences. Using the Bloom taxonomy as a guide, the teachers prepared lesson plans which they believed would be appropriate for students who varied greatly in ability.

Human Characteristics

This portion of the Humanself unit was divided into four major parts:

1. Outward Physical Characteristics
2. Personality
3. Reactions
4. Man and Other Animals

Objectives:
1. Students will describe their own physical and personality characteristics.
2. Students will relate reactions to stimuli.
3. By role-playing, students will demonstrate how people can use their faces and bodies to communicate different moods and feelings.
4. Students will compare and contrast physical and psychological characteristics and reactions of animals with those of a human being.

Classroom Management and Activities: A variety of activities was planned to assist students in meeting both the cognitive and affective objectives. Many of the ideas for these activities were adapted from the booklet, Humanself, in the Biological Sciences Curriculum Study (BSCS) series.

There were opportunities for the students to describe their outward physical characteristics and compare these descriptions with those of other students. A great deal of emphasis was placed on writing skills at this point since the descriptions were written. These papers also served as preliminary writing samples to give the Minischool teachers an initial impression of students' level of writing proficiency.

A police artist spent a morning with the students demonstrating the value of specific descriptions when trying to make an identification. As a preliminary activity, the students came up with descriptions of two people at the MSSD and gave the descriptions to the artist. It was interesting to see how well the students' descriptions aided the artist in coming up with an accurate picture of each individual. This was a very valuable activity for the students were "forced" into giving detailed information. New vocabulary emerged and the students had the opportunity to apply the vocabulary learned from previous activities.

There were many affective activities including role-playing sequences in which certain situations were invented to elicit different reactions from the students and to get at individual personality characteristics. Visual aids were employed to demonstrate the way a person's body and face can communicate feelings. This was done very simply by using slides of people communicating different moods and feelings through changes in facial expression and body posture.

Although time became a factor and not all the activities could be completed, many were planned to get the students to compare themselves to other life forms, particularly animals. Again making use of many visuals, students compared and contrasted human characteristics with those animals.

Summary activities were developed for use at the end of each of the four major sections of this portion of Humanself. At the end of each section, the students had to provide self-descriptions. Thus, at the end of the first section, only physical characteristics were included. At the end of the second part, personality characteristics were included in addition to physical ones. Reactions, feelings, and moods were added at the end of the third part. At the end of the fourth part, the students attempted to compare and contrast

physical and psychological characteristics of animals with those of humans using all of the characteristics learned in the preceding three sections.

Given the different cognitive, affective, and language skill levels of the students, we naturally expected different performance levels from each of them. The behavioral objectives were written with a variety of possible criteria for accomplishment. For example, some students could meet an objective through an identification task, while others would have to describe or even summarize information. This enabled the teachers to individualize instruction more successfully.

Movement and Support

This section of the Humanself unit dealt with the muscular and skeletal systems of the human body. We wanted the students to learn the parts of these two systems and to understand their functions as support and protection mechanisms. We also wanted them to understand the interrelationship of the two systems.

Objectives:

1. Students will demonstrate comprehension of the anatomy and physiology of the muscular system of the human body and explain how activity can affect muscles favorably or adversely.
2. On a test students will demonstrate comprehension of the anatomy and physiology of the skeletal system of the human body.

Instructional Strategies and Curriculum: There was generally small group instruction with the groupings random and changing throughout the series of planned activities. The activities were either teacher-developed or were derived from the "Me Now" series, the "Human Body" program, the "Elementary School Science" (ESS) program, and suggestions accompanying films. Generally, the starting point of an activity was the students' prior knowledge and intuitive feelings about a subject. With this as a base, we attempted to help the students

achieve a more formal knowledge and comprehension of the parts and processes of the muscular and skeletal systems. Particularly useful were models, X-rays, charts, diagrams, the captioned film The Human Body: Skeleton, and a series of ESS film loops which showed an X-ray version of parts of the body in motion.

This was followed by application activities. One of the most successful activities involved students' looking at pictures of skeletons and drawing conclusions about modes of locomotion, and of eating, size, name, and so forth. Another was an activity in which small groups of students, given boxes of bones, were required to reconstruct the skeleton, identify and describe it, and explain its construction.

As part of our interdisciplinary approach to this subject, students were required to read a teacher-adapted version of the short story The Fifty-Yard Dash by William Saroyan.

Other potential activities could have included watching a gymnastics team, taking slow motion pictures of humans and animals in motion, and learning about first aid for bone and muscle injuries.

What Happens Inside Your Body

This subunit was divided into three parts:

1. Digestion
2. Circulation
3. Respiration and Body Wastes

Like the other subunits this one was primarily concerned with skill development. The TPO required students to apply their knowledge of the different systems and to synthesize the information. The enabling objectives were such that students had to demonstrate a comprehension of the materials. In demonstrating this comprehension they would necessarily apply certain skills.

Pre- and post-tests were given for the whole subunit; no separate tests were given for the three parts of the subunit. Competence was demonstrated by completing the required investigation or activity.

Objective: 1. Students will demonstrate the interdependence of the digestive, circulatory, and respiratory systems by one of the following means:

a. Passing a multiple choice test of application questions.

b. Diagramming the systems and labeling the points of interdependence and describing the process.

c. Correctly answering the questions:

(1) Can man live without one of those systems and why?

(2) Can any of those systems work without the others and why?

d. Describe how the body is like all the other systems, in that it is dependent upon the working of all of its sub-systems.

Classroom Management and Activities: There were over 46 activities for this subunit, many of which were found described in detail in the BSCS series, Humanself.

Each of the parts of the subunit was started with the students hypothesizing how they thought that particular part of their bodies worked. The students watched 8mm film loops, video-tapes, and 16mm movies to check out their initial hypotheses. They also participated in a variety of lab experiences.

Of particular note here is that many of the activities were "hands on," and these were very successful with all ages and cognitive levels of students. Also during the study of circulation we watched a rather old film made by Bell Telephone called Hemo the Magnificent. This film is particularly good and the students enjoyed it immensely.

One of the difficulties encountered here was the inappropriate physical environment of a small temporary building. "Hands on" activities need a great

deal of preparation and facilities that include large worktables and a wash bowl. However, it is possible to do many of these activities outside of the "traditional" science lab, and with a minimum of higher level science training.

The Brain and the Senses

Obejctive: Students will explain how the brain and senses control the conscious and unconscious activity of the body.

Activities in an instructional package, I'm Just a Bundle of Nerves, outlined the function of the nerves and the three major parts of the brain. A movie, Gateway to the Mind, emphasized the importance of the brain and the way in which drugs affect it.

With knowledge of the functioning of the brain and nerves as a base, the students began to learn about the senses. There were, in general, three types of activities: experiments, reading in instructional packages, and discussion and sensory writing stimulated by a series of filmstrips entitled Come to Your Senses.

In an experiment on touch, the students located the nerve endings which produce feelings of pain and pressure. In another activity they watched a filmstrip and tried to imagine how it would feel if they picked up a frog, stood under a fountain, walked through mud, or fell into a cactus. A vocabulary of words related to touch was developed.

Taste and smell are related senses, smell being a major factor in what we normally call taste. An experiment was designed to prove this. With eyes closed and noses held the students were unable to distinguish between an onion and an apple.

Next, the students were asked to look at pictures and respond by describing tastes. This is very difficult to do, of course, because there are only four basic tastes. Eventually the students learned this for themselves when they

made taste maps of their own (and the teacher's) tongues.

Captioned films were available to supplement instructional packages on sight and hearing. There were also activities designed to promote visual literacy.

Some of the activities we had planned had to be cancelled because there was not time for them. We hated to leave them out, but we wanted to keep to our schedule. This was to be the first of our many confrontations with the calendar.

Unit 2: Communities

This unit, originally entitled People Interacting with People, later became known as Communities.

In the Humanself unit, we had studied people as individuals possessing unique identities. For our second unit, it seemed logical to proceed to a study of people as members of a group. The idea guiding the second unit of the Minischool curriculum would be to show that there is an interdependence among people which results from certain basic needs and which works to satisfy these needs.

We saw this unit progressing through several stages: a general study of needs and the structures developed to satisfy them; a specific in-depth study of a rural community and an urban community (which would include living experiences in both communities); and a series of summation activities which would include designing a model rural or urban community.

All of the activities were planned to tie into the central theme and were packaged together in a "unit book." They were drawn from the content areas of science, social studies, English, and mathematics and were designed to provide the students with numerous opportunities to develop language and communication skills and also critical thinking skills--particularly application

analysis, and synthesis. Although all the students studies similar content, they did not all participate in the same activities. The activities were developed on three levels to accommodate the unique language needs, cognitive needs, and learning styles of the individual students.

The following outline gives an overview of the unit; more discussion of each of the topics will follow:

1. Needs

    a. Reproduction
    b. Robinson Crusoe
    c. Economics/Mathematics
    d. Systems

2. A Rural Community

    a. Background information
    b. Planning the trip
    c. Taking the trip
    d. Reporting the trip

3. An Urban Community

    a. Background information
    b. Planning the trip
    c. Taking the trip
    d. Reporting the trip

4. Community Development

    a. Factors involved in community development
    b. Conflicting interests in community development
    c. Designing a model community

The students' daily activities consisted of Unit 2 activities and current events. The schedule varied according to the nature of the activities and the interest and motivation exhibited by the students.

When we studied "The Rural Community," "The Urban Community," and "Community Development," the subtopics listed under each were studied consecutively. In addition, the students continued to work on the economics/mathematics

activities,[10] and continued to have a daily current events period. Each week there were also special affective activity periods; this was a constant throughout the entire Unit 2.

Needs: Reproduction

Objective: Students will be able to describe the basic biological processes which result in reproduction, including such concepts as bodily and psychological changes connected with puberty, identification and function of the reproductive organs, fetal development, and birth.

Classroom Management: For the content activities the students were placed with others in groups no larger than six on the basis of their perceived level of maturity and sophistication about this topic. During the affective activities the students were in large groups.

Curriculum and Instructional Strategies: Lectures and discussions were planned to develop the students' knowledge and comprehension. Emphasis was on the acquisition of facts and new vocabulary. Particularly useful were: diagrams and transparencies of the human body found in biology texts; the Time-Life book, The Human Body, which has excellent pictures detailing fetal development and birth; and guest speakers including the school nurse and a new father who had been present in the delivery room.

Following each lecture and group discussion, the students were asked to summarize in writing the material that had been covered. For the affective activities, students were invited to write down any questions they might have and to place them anonymously into a question box. The Minischool counselor then answered and discussed the questions with the entire group. In addition, there were counselor-led discussions about attitudes and feelings toward this subject. Some of these discussions occurred with the whole group present;

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[10]The economics/mathematics activities are described in the mathematics section of this report.

sometimes the boys and the girls were separated into two groups, each having an adult as a leader.

Needs: Robinson Crusoe

Objectives:

1. Given a situation in which an individual is stranded on a deserted island, the student will be able to list that person's essential needs and explain some ways that the person might go about satisfying them.

2. The student will produce a written report on the story Robinson Crusoe which will include an outline, an introductory paragraph, information subparagraphs, and a summary paragraph.

Student Management: Generally the students worked individually with the teachers available to assist. There was some small group work during the introductory exercises.

Curriculum and Strategies: The first part of this subsection required the students to read all or portions of an adapted version of Robinson Crusoe published by Lear Siegler, Inc., Feron Publishers. All the assigned reading was preceded by and supplemented with vocabulary and grammar exercises. To reinforce comprehension of the story the students in small groups watched an uncaptioned filmstrip of Robinson Crusoe which as a group they had to "caption." Finally, the students were required either to write or to give a talk on the topic of how Robinson Crusoe satisfied one of his needs.

The second part of the subsection introduced work on reporting. Through various examples of reports including one on a small town, the students were introduced to the general concept of reporting with emphasis on its major function, communication. The students then went through a series of activities in which they made an outline, distinguished between appropriate and inappropriate introductions, wrote information paragraphs on particular needs and how they were satisfied, distinguished between appropriate and inappropriate

summaries, and selected an appropriate title for the report.

Needs: Systems

Objectives:

1. Students will be able to define the word "system" as "having many parts each of which is dependent on the other."
2. Students will give some examples of systems and explain how they fit the definition.
3. Students will explain how the economic system affects and is affected by people.

Student Management: Those students with the stronger language and cognitive skills worked through this section individually with a teacher available to help when needed. Students with weaker skills worked through the materials in a small group with a teacher taking an active role.

Curriculum and Strategies: The material used in this section was teacher-developed. Through examples of systems already familiar to students, a definition of system was developed. This concept was then applied to families and communities. Finally, the economic system with its rules of supply and demand was considered to show its interaction with the systems of families and communities.

The students who worked individually read a brief selection and answered questions about what they had read. A videotape of the written material signed in English was available if the students were not sure they had completely understood the material. There were also readings about systems and economics from the SRA text Our Working World: Cities and from the Harcourt, Brace and Jovanovich text Principles and Practices in the Teaching of the Social Sciences: Concepts and Values (Brown), as well as follow-up work sheets.

Those students whose language skills were weaker worked in a group and first watched an Ameslan version of the written material. They then worked through the questions with a teacher directing the activity; much explanation

and supplementation was given to the videotape presentation.

A Rural Community

The students studied about either Crisfield, Maryland, or Lancaster, Pennsylvania, and visited one of these two places.

Objective: In a report, the student will demonstrate an understanding of an appreciation for the manner in which basic needs are satisfied in a rural community.

Classroom Management: The students were divided into two groups; one to study Crisfield, and the other to study the Lancaster area. The basis for the division was mainly social, since the students would be traveling and living together. The group was heterogeneous in terms of sex, race, and academic performance. For the classroom activities the two groups sometimes were subdivided on the basis of cognitive and language skills and at other times worked as a whole.

Curriculum and Strategies: The activities planned for this section were developed on three levels to accommodate the varying cognitive abilities of the students. A student was placed on a particular level after an analysis of performance on the MSSD-developed cognitive skills test administered at the start of the Minischool, and informal teacher evaluation of the student's level of functioning. Each level will be described separately.

Level I was the most teacher-directed level. The students generally worked together in small groups, although occasionally there were reading and writing assignments.

The first activity introduced the concept of "fact" and provided work on comprehending and writing fact questions. The students then learned to use different kinds of maps to obtain information about such things as location, geographic features, and climate and physical features, including streets and landmarks. An application exercise followed in which the students were re-

quired to draw a map of the place they would visit.

The students read about the history of the area and then met for a discussion of it. Written assignments followed the discussion. Then they found out about the present-day Crisfield or Lancaster. There was not much emphasis on reading for information, but there was a good deal on the use of discussion and inquiry. For each discussion topic (industries, population, problems) the teacher had a list of questions to be used with the students and basic information to guide the discussion and questioning. After the group work, the students were given worksheets to complete.

As a final activity, each student was given a questionnaire about the community to be visited and independently had to find the answers to the questions. There was first a group discussion of vocabulary used in the questionnaire and on resources that could be used. The research required was on a relatively simple level and the possible resources were all at hand.

The activities on Level II were still structured and directive but involved an equal amount of individual and group work.

The students were referred to the atlas, the almanac, and a few other resources particular to the community they would visit. The teachers guided them in locating the community and finding statistical information about its population. Then they studied the people of the community, its history, and its present-day appearance. They read through a series of teacher-developed reading selections and answered comprehension questions. These were followed by discussion. The students going to Lancaster watched a film borrowed from the Pennsylvania Dutch Tourist Bureau.

Level III was the least teacher directed level; the students generally worked independently on structured research activities.

The students were required to read selections from textbooks and to answer questions contained within the text. The books used were Man and His World and Regions and Their Needs from the Contemporary Social Science Curriculum (CSSC) series and Principles and Practices in the Teaching of the Social Sciences: Concepts and Values (Orange) from Harcourt, Brace and Jovanovich. Then, individually, the students developed outlines related to those aspects of the geography, history, and people of a community that they believed were important to study before visiting a community.

The importance of research sources was emphasized. After reading about different kinds of sources, the students listed appropriate ones for each item on a previously developed outline. They were sent to find specified information about the geography, history, and people of the community to be visited. They had the option of working alone or with a partner. It was up to each student to decide what sources of information were to be used and to use them correctly. After the information had been obtained, each student was given the task of making a public relations poster about the community being studied.

Planning the Trip: The goal of the first set of activities was to decide the best way to travel and to plan what to bring. The Level I and II students answered structured questions that at times referred them to outside sources. The Level III students were merely instructed to draw up a plan for arriving at the community in the most efficient manner. Students could choose to work alone or in teams.

The second set of activities involved developing questionnaires that could be used in the community. Level I students worked closely with a teacher in doing this. Level II students first answered a questionnaire about themselves and their families; then, as an application exercise, were asked to draw up another questionnaire about the way a community takes care of the

physical, social, economic, and cultural needs of its inhabitants. Teacher help and direction was available. Level III students went through a series of activities in which they made lists, first individually and then as a group, of questions about the area they were to visit and the people who lived there. These lists were subsequently converted to outlines from which a final questionnaire was written.

When these activities were completed, all students going to each community met together and discussed a condensed version of the questionnaires; they talked, too, about how they would gather the required information.

Taking the Trip: The Crisfield group left on Monday and returned on Thursday. Since they did not have any contacts in this town, arrangements were made for them to stay in empty dorms at the University of Maryland's Eastern Shore campus which is located about ten miles from Crisfield.

The Lancaster group left on Tuesday and returned on Thursday. They were fortunate to be able to make arrangements through one of the teachers for all the students to live with a family who owned a large old farmhouse there. While in the communities, the students walked about, communicated with residents, took pictures of assigned topics, and visited special places.

Reporting the Trip: When the students returned from the communities, they were given the task of preparing a report on some aspect of their experience. Each student met individually with a teacher to decide on the topic and to plan the report. Reports were to be written and could be supplemented by slides, pictures, and so forth. Each group then made a presentation to the other group.

An Urban Community

The students studied either about Boston or New York City.

Objectives: The objectives were the same as those for the rural community study.

Classroom Management: Student groupings also remained the same.

Curriculum and Strategies: The activities in this section were arranged by level to accommodate the different cognitive skill levels of the students.

This time, the Level I activities were planned to be somewhat less teacher directed. There were fewer discussions and less group work on worksheets, and more individual reading and answering of comprehension questions. There were such activities as using maps to obtain information, readings and worksheets about the history of the community, and completing a questionnaire about it.

The Level II activities were directive and structured, yet required independent work as well. Some activities involved using maps, atlases, and almanacs. Readings were from teacher-written material, from The Metropolitan Community, published by Allyn and Bacon, Inc., from Our Working World: Cities published by Science Research Associates, Inc., and from the World Book Encyclopedia. All readings were reinforced by comprehension questions.

Students on Level III had activities even less structured and directed than those in the study of the rural community. After a series of readings from The Metropolitan Community, from Urban America--Problems and Promises published by W.H. Sadlier, Inc., or from Exploring the Urban World: The Growth of Cities, published by Globe Book Company, Inc., students were assigned a research paper on the geography, history, and inhabitants of the community they were planning to visit. They were not given specific questions to answer but were referred to the outlines they had developed during their rural community research. They submitted an outline, discussed it with a teacher, wrote a rough draft, discussed it with a teacher, and then wrote their final

drafts.

Planning the Trip: The activities in this section were essentially the same as those in the planning sessions for visiting the rural communities. Because of time limits, however, and a desire for group interaction, the whole group going to a particular community planned together and decided on the kind of information to be gathered.

Taking the Trip: Each group left on Monday and returned on Friday. Those who went to Boston stayed with people in the Roxbury section, an arrangement made by a minister with whom we had contact. The New York group also stayed with residents, thanks to arrangements made by two of the teachers. While they were in the communities, the students took walking tours, visited places of special interest and talked with residents.

Reporting the Trip: When they returned, the students were given the task of preparing written reports on some aspect of their experience. These reports could be supplemented with slides and pictures. As with the rural community project, each student met individually with a teacher to decide on a topic and plan the report, and each group made an oral presentation to the other group.

Community Development

Objective: Students will demonstrate an understanding of the factors and conflicts that are attendant to community development.

Classroom Management: The students worked either in randomly selected groups of five or ten depending on the group activity or they worked individually on special projects.

Curriculum and Strategies: In Activity 1, students were presented with a series of written and pictured problems and situations which required them

to make decisions about the factors which must be taken into account in planning a community, the factors that influence a community's growth, and the factors that make a community a good place to live. The situations and questions are in the workbook part of the text, Our Working World: Cities.

In Activity 2, the students participated in a simulated conflict situation related to community development. They were divided into two groups. In one group, students were given the roles of factory builder, environmentalist, highway builder, mass transit advocate, or family needs advocate. In the other group, the assigned roles were office building construction interest, poor people, rich people, local needs advocate, or tourists' interests advocate. Each student had to prepare arguments to support the position represented and then, in a group encounter, to convince the others of the importance of the concerns espoused.

In Activity 3, students were given the task of designing what they envisioned to be a model community. Each student could choose the kind of community to be developed and the medium to be used in the actual design. Most students chose to draw their community, but a few used specially designed blocks to express their ideas.

Unit 3: People and the Environment

This unit was a natural successor to the first two, Humanself and Communities. It permitted students to expand their boundaries from self, through communities of people, to the study of people and their relationship with the environment. The unit began on October 28, 1974, and ended on April 11, 1975.

The generalization which underlay this unit was that there is a constant interaction and reaction between man and his physical environment; how man uses the environment will determine what the future will be like.

In order to encourage students to study the environment fully, a comprehensive sequence of major topics was established:

1. Introdution to People and the Environment

    a. Introduction to the earth and universe
    b. Climate and regions of the earth
    c. Natural resources

2. Case Study Series (of month-long case studies offered, students were required to choose two)

    a. Israel and Egypt
    b. Africa
    c. The Poles
    d. Mainland of China

These will be discussed in the following sections.

All Minischool students were required to take the introductory courses, after completing which they spent two months participating in two of the case studies. The introduction was designed to give students the necessary exposure to concepts inherent in a general study of the environment. The case studies provided students the opportunity to apply these concepts in studies of particular areas of this earth.

Introduction to the Earth and Universe

The introduction lasted from October 28, 1974 to December 13, 1974. It exposed the Minischool students to:

1. the different theories of the creation of the earth;
2. the solar system and universe;
3. the make-up of the earth's environment, past and present;
4. the changes of the earth;
5. the evolution of man.

Because the Minischool students manifested a variety of skill levels in language and cognition, two sets of objectives were developed for this portion

of Unit 3. One set, the "A" objectives, required students to perform identification tasks, whereas the "B" objectives required tasks involving description.

"A" Objectives:

1. Students will identify at least three theories of the creation of the earth.
2. Students will identify, using matching, the major water and land forms on the earth.
3. Students will identify the major components of the solar system.
4. Students will identify specific pieces of evidence regarding the changing earth.
5. Throughout the introduction, students will actively participate in all cognitive and affective activities and complete all assignments.

"B" Objectives

1. Students will describe between one and three theories of the creation of the earth.
2. Students will identify from memory the major water and land forms on earth.
3. Students will describe in writing or with pictures the major components of the solar system.
4. Students will describe in written form pieces of evidence regarding the changing earth.
5. Throughout the introduction, students will actively participate in all cognitive and affective activities and complete all assignments.

A Goal Attainment Scaling System (GAS) form was completed for each student, identifying which of the above goals he or she was to attain by the end of the introduction. Two post-tests were administered, one for each of the two sets of objectives. Generally, a student was expected to attain either the "A" or "B" objectives only. However, some students were expected to reach both "A" and "B" objectives and would take portions of both post-tests. Students who met the objectives set for them, but who were thought to have attained higher-level objectives as well, also took portions of both post-tests. Those students who did not meet their expected objectives were given

individual help.

Classroom Management: Although all Minischool team members shared the responsibility of putting together the curriculum to be used, two teachers from the team did all the teaching. The 21 students were divided into two classes, ten students in one and eleven in the other. These groups were scheduled at different times so that each could be taught by the two teachers. Occasionally they were subdivided so that one teacher could work with a group of four or five. When a field trip was in order, all 21 went out together.

The two team members not only provided direct instruction but also assumed the role of facilitators when students were involved in individual activities and projects. Both members were also responsible for developing the post-tests, administering and correcting them, and reporting student progress to parents.

A great deal of use was made of specialists in particular fields throughout the whole activity sequence since neither of the two team teachers was a science or philosophy specialist. Students were very responsive.

Curriculum and Instructional Strategies: The first activity was an explanation of the schedule for the introduction. We had found that students were most comfortable and able to pace themselves when their schedules were perfectly clear.

The students next watched the film Cosmic Zoom and offered a variety of hypotheses about the formation of the earth. Each of their hypotheses was videotaped, and a summary made of important discussion points.

After this a clergyman was invited in as a guest speaker. He gave a rather lengthy speech about the religious attitude toward the scientific theories of the creation of the earth, explaining that he personally saw no conflict.

A section of the Walt Disney film, Fantasia, stimulated more hypotheses for the development of life on earth. A science teacher came in to elaborate upon some of the scientific theories; a guest social studies teacher did the same. Another film, The Origin of Life, added further information, as did a trip to the Smithsonian exhibit, "The Universe." A visit to the planetarium gave the students a clearer idea of the vastness of the universe.

During each of these activities, one of the primary emphases was upon forming hypotheses and checking them out. Each presentation was followed by individual worksheets and by comparison of answers in discussion. At one point, students each wrote a story of the creation of the earth and were videotaped telling it.

The next topic--ways in which the earth has changed and is still changing--gave students opportunities to study and discuss maps and water and land forms. One group did some enrichment study of the theory of continental drift. Everyone watched the movie Violent Earth.

An important topic was the emergence of man, about which there were group discussions and individual investigations using a variety of books and other aids.

The last activity in the introduction was a videotape of the students discussing what they had learned and any changes of opinion they had experienced from study of the earth and universe.

Climate and Regions of the Earth

This topic was offered during the month of January, 1975. The following subjects were covered:

1. Weather
2. Climate
3. Latitudes/Longitudes
4. Regions

a. Mountains
b. Rainforests
c. Deserts
d. Grasslands

Objectives: The following enabling objectives were taken from the Contemporary Social Science Curriculum (CSSC) Series:

1. Students will distinguish between lines of latitude and lines of longitude on a globe.
2. Students will find given numbers of a latitude or longitude on a globe.
3. Students will point out the equator and identify it as the zero latitude.
4. Students will point out on a globe the North Pole and South Pole and identify them as the northernmost and southernmost points on the earth.
5. Students will identify on a globe the northern, southern, eastern, and western hemispheres.
6. Students will distinguish between weather and climate.
7. Students will identify at least three characteristics of these four types of regions: mountains, rainforests, deserts, and grasslands.
8. Using a globe or map, students will locate examples of mountains, rainforests, and grasslands.

Classroom Management: Classes were organized into small groups with no more than five students per group. One Minischool team teacher taught all these groups. One group met three times a week; the other groups met only twice. Because of time limitations, the maximum number of classes any one group could receive was nine.

Much material was available for the study of this portion of Unit 3, and a number of good resources that could have been used if more time had been allotted for this topic. As it was, it was difficult to cover all the material even with students who had perfect attendance records. Because of this, we recommend that at least six weeks be given to the teaching of this material,

with classes meeting at least three times a week for 45 minutes to one hour per class.

Curriculum and Strategies: In general, the activities related to each of the first three topics listed involved a great deal of vocabulary work, hands-on investigations, and reading assignments, followed up by worksheets and small-group discussions. The fourth topic, Regions, offered the students the opportunity to apply the knowledge gained while studying the first three particular regions of the earth.

Because there was a great deal of reading necessary and because students manifested different cognitive and reading skill levels, the content was arranged in levels of difficulty. The kinds of activities developed reflect this leveling. All students received the same information, but often at different degrees of complexity. A student working with high level materials would often work independently, while one working with low level materials would more often work directly with the teacher. The criteria for acceptable completion of an activity also varied according to level.

Natural Resources

This topic was offered during the month of January 1975, to classes which met twice a week for four weeks.

Objectives: The following objectives were adapted from the book People Use the Earth from the CSSC series.

1. Students will define the term "natural resources" and give examples.
2. Students will describe different kinds of natural resources.
3. Students will differentiate between man-made and natural objects.
4. Students will explain why we have to be careful about how we use our natural resources.

Classroom Management: Again there were small groups of five or six students each. One Minischool teacher taught all of the groups.

Curriculum and Instructional Strategies: Like the objectives, the activities for this content area were also taken from People Use the Earth. Recognizing the need to individualize the activities to meet the skill levels of the students, two sets of activities were developed. Level I activities were designed for students who were not able to gain information completely on their own by doing independent research or reading. Level II activities permitted students to find a great deal of information independently and through reading assignments, and were therefore more appropriate for those students with higher language and cognitive skills. All activities in both were organized around two questions:

Lesson 1: What are natural resources and how are they used?

Lesson 2: How are these natural resources wasted?

Sets of subquestions were then developed for each of the two lessons. The manner in which students found the information to answer them varied according to the level on which they had been placed.

The study of the earth's natural resources began with the film The World is a Bank, which introduced the concept of natural resources, illustrated some natural resources, and required that students identify those they were seeing in the film. From this point on, students working on Level I activities made use of pictures, slides, and assigned readings to answer questions assigned them. All reading assignments in Level I were kept brief, with the teacher monitoring the reading and stressing vocabulary development and enrichment. Most questions required short answers designed to draw out specific information about the subject.

Students assigned to Level II activities did most of their work indepen-

dently, working with the CSSC text and Problem Solving Booklet, People Use the Earth. Questions for them were designed to elicit full descriptions rather than short answers. In addition, these students were required to do one independent project selected from three presented in People Use the Earth.

All students had individual folders in which all their completed worksheets were kept. In this way, the teacher was able to monitor progress through the activities and evaluate whether or not the students had met all the established objectives.

Case Study 1: Israel and Egypt

Four Minischool students selected the case study on Israel and Egypt. One Minischool team member was responsible for developing and teaching it. This case study was scheduled for slightly over four weeks with four classes a week, 45 to 60 minutes a day.

Objectives: Two sets of objectives were developed: Set "A" for those students with higher level cognitive and language skills, and set "B" for those with less sophisticated cognitive and language skills. None of the students with really weak skills signed up for this case study.

"A" Objectives:

1. Through independent research students will explain fully on paper and to the group at least one aspect of deserts.
2. Students will draw a physical and political map of Egypt and Israel to scale.
3. Students will do a brief research paper on the Suez Canal.
4. Students will explain the ways the Nile River has benefitted Egypt.
5. Students will explain how ancient people of the Nile Valley increased the productivity of their land.

6. Students will describe the consequences of increasing the productivity of the land on other aspects of life in ancient Egypt.

7. Students will describe the problems faced by Israel in attempting to grow enough food to meet the country's needs.

8. Students will identify means by which the people of Israel are increasing their arable acreage.

9. Students will describe the ways Israel is trying to use every resource in the country.

"B" Objectives:

1. Through independent research students will explain fully on paper and to the group at least one aspect of deserts.

2. Students will describe how the Nile River is important to Egypt.

3. Students will give reasons why Cairo has continued to exist in the desert.

4. Students will give reasons why the Aswan Dam is important.

5. Students will describe how people farm in the Nile Valley.

6. Students will describe the problems faced by Israel in attempting to grow enough food to meet the country's needs.

7. Students will identify means by which the people of Israel are increasing their arable acreage.

8. Students will describe the ways Israel is trying to use every resource in the country.

Curriculum and Instructional Strategies: For each of the two countries there was an overview which emphasized basic facts and concepts related to land, climate, and natural resources. Individual student projects followed, after which videotapes summarized each student's work throughout the case study.

On the first day a diagnostic worksheet covered definitions, facts, and comprehension. A film compared the characteristics of deserts, grasslands,

and tropical rainforests, and a discussion of these different areas followed.

On the second day, the film Sahara--la Caravan du Sel focused on Egypt. Students were asked to describe the characteristics of a desert and to imagine their physical and emotional reactions to being in one.

Days three through seven saw students working individually on research projects related to some aspect of the desert they found particularly interesting. The reports were either written or graphic. If written, they had to begin with an outline. Each had to include an oral presentation. During this time some students met an "A" objective by drawing to scale a map showing the physical and political features of Egypt.

On the eighth day everyone watched the film Modern Egypt and discussed it. On the ninth through eleventh days "A" objectives were met by brief reports on the Suez Canal and reading and discussing a chapter in CSSC's Man and His World about ancient Memphis and the importance of the Nile River. Worksheets prepared by the teacher were part of this effort.

Reading about Israel in People Use the Earth occupied the twelfth day. Students learned the way that Israel uses its very limited resources.

During this time, students who had been set the "B" objectives pursued similar activities. They joined the others in watching the film and discussing it. They read the chapter about Egypt and the importance of the Nile. However, they worked more slowly although they were still expected to do the reading about Israel.

The remaining time (the case study lasted 18 class days) was spent on Israel. Students watched a film, Israel, discussed it, and answered worksheets. The "B" students read the chapter in People Use the Earth; the "A" students drew scale maps of Israel showing political and physical features.

In addition to the CSSC books already mentioned, the Minischool teacher in charge of this case study made additional books available to the students for use as references. Students also used various classroom maps, relief maps, and atlases.

On the last day, students made videotaped summaries of the case study which included (1) individual student presentation of research on the desert project, with other students and the teacher asking questions related to it; (2) individual student responses to teacher questions related to facts and concepts dealt with in the case study; and (3) individual student reaction to what was learned. These videotapes were valuable to the teacher in evaluating student progress.

Class Study 2: Africa

Objectives:

1. Students will demonstrate a knowledge of the geographical features, population density, rainfall, natural resources, and animal and plant life of one African country by

   a. designing and making a relief map of one African country using modeling clay to show topographical features, and political boundaries;

   b. designing and making maps on poster board depicting

      (1) population density,
      (2) natural resources
      (3) rainfall
      (4) flora and fauna;

   c. designing appropriate keys for the above maps;

   d. presenting the maps in a class report.

2. Students will demonstrate a knowledge of the geographical features, population density, natural resources, and animal and plant life of one African country by

   a. researching and writing a bibliography of the above topics using the MSSD library and other sources provided;

b. evaluating the sources available and choosing those most appropriate for their paper;

c. writing an outline of a research paper on one African country to include the above-mentioned topics;

d. writing a rough draft of the research paper;

e. revising the draft and writing a final paper on the selected country;

f. presenting the paper to the class as an oral report.

Curriculum and Instructional Strategies: The students investigated either Tanzania, Kenya, or Nigeria. Determination of which of the two objectives was most appropriate for an individual student was based upon the student's level of language and cognition. All students were ready to "apply" knowledge they had gained in other sections of the environment unit. Those who could comfortably apply basic concepts of geography, natural resources, and climate, but who did not possess the skills necessary to write a research paper, undertook the activities related to objective 1. Those who were able worked on research papers.

The teacher was always on hand to give direction to those students designing and making relief maps. The clay, boards, and other materials were provided for the students. Students who worked on research papers were allowed a great deal of independence in investigating their topics. The teacher's role was that of a facilitator-providing resources in the classroom--and helping students use resource material available in the library. The teacher managing this case study had a social studies background and enlisted the aid of the Minischool teacher with expertise in English to help students with their outlines during their English skills class.

The case study was offered twice. It was scheduled for four weeks, four classes a week for 45 to 60 minutes per class. At the end of four weeks,

students made individual presentations to their group. In addition, some students were given the chance to volunteer to make a presentation of their work to the entire Minischool group of students and staff. These presentations were videotaped and then viewed by everyone at a later date.

Again, the videotape was very useful for evaluating student progress. Also, the day-to-day contact with each student made it possible for the teacher to observe the way individual students actually applied previous knowledge and synthesized what they had learned throughout the study of Africa.

Case Study 3: The Poles

During this case study students investigated different polar regions of the earth, including a study of the people of these regions and how they find food, clothing, shelter, and protection.

Objectives:

1. Students will describe at least two polar areas. The description will include land and water forms, climate, vegetation, sunlight, animal life, and human population.
2. Students will describe how people in one of these areas get food and clothing, shelter, and protection; in short, will describe the society.
3. Students will describe values important to people who live in polar areas and explain why.
4. Students will write an essay summarizing a topic of their choosing related to the polar regions.

Curriculum and Instructional Strategies: Ten Minischool students chose to study the poles. One Minischool teacher was responsible for the development of the case study which was presented to the students in an instructional package containing the following sections:

1. Pre-test and introduction
2. Geographical location of the polar regions
3. What the polar regions are like

4. Who lives in the polar regions

5. Seasons and light

Students began their investigation of the polar regions by watching a movie entitled White Wilderness. As a pre-test, they were asked to write what they would do to stay alive in a place as cold as the one shown in the film. These papers were saved and compared to those written at the end of the case study. After completing the pre-test, students answered a questionnaire dealing with values, then turned their attention to the study of different polar regions of the earth.

During this study there was opportunity for the application of the various geography skills that had been learned previously. The concepts of season and light were expanded to include information about the midnight sun.

A number of very fine films about the polar areas was seen and much appreciated by the students. Film-watching was followed up by discussions and sometimes written work in the instructional package.

Students selected a number of different topics for their final written reports, ranging from life in Siberia to animals of the Arctic. The preparation of the reports gave them an opportunity to analyze and synthesize.

Case Study 4: China

This case study was concerned with the environmental aspects of mainland China and was a popular one with students. Fifteen students signed up for it, with the result that the study had to be given in three separate classes. The students ranged through a full spectrum of ability levels necessitating a wide variety of objectives and activities.

Objectives: 1. Students will identify the major geographical regions of China either (a) in list form, (b) with labels on a blank map of China, (c) in paragraph form, or (d) any combination of the above.

2. Students will identify the following aspects of the environment of China: resources, climate, topography, and vegetation. They will do this either (a) in list form, (b) pictorially on a blank map, (c) in paragraph form, or (d) any combination of the above.

3. Students will relate the four major environmental aspects of China to population growth and placement either (a) in map or chart form, (b) in paragraph or report form in acceptable English, or (c) a combination of (a) and (b).

4. Students will develop a summary report describing the environmental aspects covered in the preceding objectives. This report is to be presented before the group using either (a) written report text only, (b) charts and maps only, or (c) a combination of (a) and (b).

5. Students will describe the effect the environment in China, as they have presented it, would have upon them. Included in the description will be how the environment would influence what they need, what they wear, what they look like, what kind of job they would have, their family and school life, their use of free time, their opinion of where they now live. Students may give this description (a) in a group discussion, or (b) as a written or oral individual report.

6. Students will participate in the selection and determination of one extension objective in conference with the case study teacher, helping to write the objective and select the criteria.

Objectives 1 through 4 were used for all groups selecting the China case study. Objectives 5 and 6 were not covered formally, although objective 5 was touched upon informally in class discussions. No attempt was made to use objectives 5 and 6 for evaluation. All students, regardless of their identified cognitive level, were expected to attain each of the first four objectives. The manner in which they met them was determined by the criteria, as were the activities.

Most low level students made maps to fulfill objectives 1 through 3. They were allowed to work independently, but were required to present their maps and information to the whole group on the last day in order to meet objective 4.

Most middle level students chose to combine map-making with writing reports, which was consistent with the criteria established for these students. They were also required to present their final work to the group at the end of the case study to meet objective 4.

One student ran well ahead of the others and was able to do an extension activity, objective 6, which entailed researching two questions about China of particular interest to him. His research became part of his final report presentation.

A word about record keeping; a folder was maintained for each group of students with a page for each student, dated in order to make daily comments on progress and class behavior. As the case study progressed, an outline was developed for students explaining the individual projects each was to do. The actual work students did was then compared with these outlines at the end of the case study.

The media used greatly enhanced the teacher's ability to organize the case study for all students regardless of cognitive level. In addition, the use of identical objectives for all cognitive levels with different criteria made it possible to individualize without having to write separate objectives for each student. The time in class, however, was not sufficient to allow students to meet all six objectives. If the case study were to be used in the future, the last two objectives for which there was not time should be considered again. Also, the length of class time should be extended to at least six weeks, or if class meetings are limited, nine weeks should be allotted.

Most students enjoyed their study. Some even developed rather ingenious ways of making maps, including overlay techniques.

Unit 4: Government

The study of communities and environment led logically to the next topic, government. Human beings had been seen as having certain basic needs which both communities and the environment help fulfill. Government, too, has its role in this. The generalizations which underlay the unit were that governments are formed to satisfy society's needs in a variety of ways, and that society and government are dependent upon one another.

Well before the unit activities were mapped out, a pre-test consisting of both verbal and nonverbal questions was administered. Some items, for example, asked for simple recognition of pictures of the White House, the Capitol, and so forth. The topics covered were basic civics and the three branches of our government as they function on local, state, and national levels. After examining the students' test responses, we planned activities to bolster their weaknesses and reinforce their strengths.

The unit was introduced during the last three weeks of the 1975 spring quinmester. We began with the movie, Animal Farm, which we felt dramatically showed the value of a good and just government as opposed to the dangers inherent in totalitarianism. The discussion which followed the movie showed that the students had become very emotionally involved in the action which helped make the discussion more than ordinarily valuable.

Local Government

Objectives:

1. Students will describe the purpose of governments.
2. Students will name the levels of government in the United States and describe their functions.
3. Students will name and describe the branches of our government.
4. Students will name the workers in the government and describe how they get their authority to govern.

Classroom Management: The students were divided into four groups, with one teacher in charge of each group.

Curriculum and Instructional Strategies: Our study of local government was very brief; we had barely begun when summer vacation was upon us. During the summer while the Minischool was closed we began discussing a new approach. We wanted to be able to put more emphasis upon activities that required cognitive and affective skills. After much discussion, we settled on four aspects of government which would lend themselves to the development of such skills:

1. the development of the government of the United States,
2. the function of this government,
3. comparative goverments, and
4. rights and responsibilities of citizens.

We then proceeded to develop enabling objectives and activities, some of which were teacher written and some adapted from Man and Society in the CSSC series. We found this series particularly helpful because of its constant emphasis on cognitive skills. Every CSSC activity can be identified by one of the following labels: reading for information, observation, recall, classification, analysis, hypothesis, synthesis, application, and evaluation.

We also planned a variety of reporting activities to occur throughout the unit. These were becoming increasingly valuable in developing both cognitive and communication skills.

The CSSC series contains a number of activities which focus on affective behavior. To these we added some written especially for our students.

Paralleling the affective activities that were actually part of the core curriculum, there was a second set offered by the Minischool counselor during her classes with the students. These centered upon the concepts of prejudice and justice. The book, Prejudice, in the Scholastic Book Services Contact

Series was an excellent source of ideas for discussion and role playing.

Freedom

Objective: Students will demonstrate understanding of the generalization that in order to maintain a free society members of the society must accept some limitations upon their individual freedom.

Classroom Management: Students were grouped by the teachers into two classes of ten each. The basis for grouping was almost social in nature with the intention of having good group dynamics for role playing and discussion. Two teachers were assigned to each group of ten students so that it was possible to break into smaller groups upon occasion.

Curriculum and Instructional Strategies: Our first set of objectives was concerned with freedom in the United States and the importance of documents that protect this freedom. As an introduction, students studied a few segments of American history: the English settlements founded to provide religious freedom, the restlessness of the American colonists as England tightened its control, the Declaration of Independence, the revolution, and finally the Constitution and the foundations of the American government.

A second part of the introduction was a study of the immigrants and refugees who have come to this country throughout its history. The students were expected to discuss the variety of cultures represented in the United States and the problems of this melting-pot population's living together peacefully.

The drama department presented a mime in which the concept of freedom was demonstrated. After watching this and then creating their own mimes, students were asked to voice their reactions. They also made posters which contrasted freedom and the lack of freedom.

An instructional package on Argentina followed. In small groups the students discussed the loss of freedom which followed a take-over in the

government. Another instructional package contained brief untitled biographies of persons who had fought for freedom, deprived others of it, or lost their freedom. The students guessed at the subject and discussed that person's life.

Next in the study of freedom came case studies which examined the freedoms established legally by the Bill of Rights. Students were asked to select the case study they preferred to pursue from (1) freedom of expression, (2) freedom of religion, and (3) due process. Each of these case studies had at its head one teacher. The approaches used in each group were also different.

Freedom of Religion

Objective: Students will prepare and give one portion of a group report on freedom of religion in the United States. The report is to include (a) the early history of religion in North America, (b) the First Amendment to the Constitution, (c) major Supreme Court decisions on religious freedom.

Curriculum and Instructional Strategies: The group studying freedom of religion first read textbook selections on religious freedom in the United States. This material was presented on two reading levels. The group then met to discuss a list of questions based on the readings, questions which forced students to examine their own values.

The next activity required an examination of the first section of the First Amendment to the Constitution: "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." A distinction was made between the "establishment" and "free exercise" cases that had been heard by the Supreme Court. They were not told the decisions, but were asked to act as judges themselves—make decisions, cite their reasons, and compare their decisions with those of the Supreme Court. This was a difficult activity for them, but one that they undertook enthusiastically. We felt it was valuable because it was an exercise in reasoning. It was followed by a similar lesson in which five "establishment" cases were treated in the

same way.

Each student then prepared a portion of a panel report on freedom of religion. A variety of resources was used for this independent research. The report was videotaped as it was given to the other members of the Minischool. Although some of the group were reluctant to give the report, none had any difficulty watching a number of playbacks of the tape.

Freedom of Expression

Objective: Students will prepare and give a report on freedom of expression in the United States.

Curriculum and Instructional Strategies: The Freedom of Speech in America, published by the Lerner Publications Company, was very useful in this case study. The students read and discussed portions of it, as well as articles from Search magazine. The group also went to the library with the teacher to find other material on this topic.

Each student then prepared a written report. On the last day of the case study, these reports were delivered and videotaped as public addresses to the assembled Minischool.

Due Process

Objective: Students will apply knowledge of due process in the criminal justice system by producing a mock trial.

Curriculum and Instructional Strategies: The focus of this study was the production of a mock trial, in the process of preparing for which students learned about the workings of the criminal justice system.

They began with an examination of the procedures that occur at the time of arrest, learning about the right of bail and the right to an attorney. They also learned about courtroom procedures and the function of judge and jury.

Much of the basic information was presented by the teacher, after which the students discussed it and demonstrated comprehension by role playing.

A "crime" was selected and students cast themselves as the accused, the judge, attorneys, witnesses, and so forth. Both the prosecution and the defense prepared their cases and also their questions for direct and cross examination. The judge, who had to absent himself from this, did some further reading on the subject.

Finally, the trial was held in the presence of the other members of the Minischool who served as the jury. The accused was acquitted, but only after a lengthy battle among jury members. The jury, who naturally participated only on the last day of the study, seemed to have learned a great deal about court procedure. A videotape of the trial was made and was the most popular television show in the Minischool for the next week.

Equality

Objective: Students will demonstrate understanding of the unifying generalization that true equality cannot be brought about by laws alone, but that people's minds must be changed also.

Curriculum and Instructional Strategies: In this study, we examined the gap between what the law promises and what actually happens. The program was essentially the same as the chapter on equality in CSSC's Man and Society, except that a considerable portion of this chapter was rewritten at a lower level, thus providing material on two reading levels. The following topics were included: Thomas Jefferson's meaning of equality and his own ownership of slaves; prejudice and preconceived notions; Jim Crow laws; reasons why people came to the United States, and the problems that confronted them at different times in history; equality of opportunity for women and blacks.

Many activities were discussions based on readings, filmstrips, or overhead transparencies. Once students role-played a traffic court, the "trial" scene being played several times by different groups, always with similar results. Although each judge tried to be fair, each unwittingly fell prey to

prejudice and was more lenient with two "prominent citizens" than with the "town bum."

Another activity consisted of a group interpretation of the Emma Lazarus poem which is inscribed on the base of the Statue of Liberty. In another, students were asked in a group meeting to vote for a leader but were informed that only persons knowing Cued Speech would be permitted to vote. The election, needless to say, did not take place. But enlightenment did.

At the end of this initial portion of the section on equality, we arranged for a series of guest speakers to address the group. These included a worker in the equal rights for women movement, a handicapped (deaf) worker, and an American Indian concerned with civil rights. Following this, students selected one of four case studies: equality in housing, in employment, in government participation, or in education.

Equality in Education

This was a study of the value of education, the problems faced by minority groups seeking a good education, and legislation on minority education.

Objective: Students will report on one of the following aspects of the education of minority groups in the United States:

1. value of education,
2. education of Indians,
3. education of Chicanos,
4. education of blacks,
5. legislation to protect the rights of minority groups to equal educational opportunity.

Curriculum and Instructional Strategies: As a beginning, students were asked to read four fictional biographies and to predict the future of the subjects of each. The subjects were a Mennonite girl forced to leave school in the middle of eight grade, an illiterate Jewish immigrant boy in the early

part of this century, a middle class white girl who went to private school and an Ivy Leage college, and a black deaf student in Florida in 1962.

Students then read the portion of Frederick Douglass' autobiography which describes his learning to read and write. (This was rewritten for the weaker readers.) They were asked to explain in writing why Douglass saw education as the "path to freedom."

They were then given a short instructional package on the American Indians. Discussions centered on the heritage of the Indians, the cultural conflict they face, and their present educational plight. Optional reading material concerning Chicano problems with education was available.

Finally, students read three teacher-written stories of Supreme Court decisions on education. They were asked to discuss them and to make a personal decision on each before learning the decisions the Court actually made.

Original plans called for a panel report to the Minischool as a whole, but unfortunately time ran out on us and the report was cancelled.

Equality in Employment

Students who selected this topic studied equality as it relates to earning a living in this country. They discussed the Fourteenth Amendment, the various prejudices which prevent persons from getting jobs, the importance of education in getting jobs, and Equal Opportunity Employment.

Objectives:

1. Students will define the term "equality" as it relates to earning a living in this country.
2. Students will list examples of reasons why all people do not have equal opportunities in acquiring jobs. The list must include:
   a. discrimination,
   b. lack of education.

Curriculum and Instructional Strategies: The introductory activity was a comic dramatization in sign and mime of the misery that befalls an uneducated

high school dropout in search of employment. After this, there was a discussion about the role of education in preparation for a job.

The students then talked about the concept of equality in terms of job opportunity and also "equal protection" as found in the Fourteenth Amendment. There was a group study of a classified ad. Using an overhead projector, they discussed both the ad and a long list of questions about job qualifications; some questions quite reasonably stressed job experience and education, while others with deliberate unfairness asked about race, sex, religion, marital status, and so forth.

Following this, students read a story, "Little Big Business," which illustrated the prejudices that exist in employment practices. In the story a succession of perfectly capable persons apply for a job and are turned down by the prejudiced management of the Widgetty-Bolt Nut Company. The students were asked to analyze and evaluate the reasoning put forth by the would-be employers.

There was more study of classified ads, this time with the students working independently. Their task was to select those of the teacher-written "ads" they felt offered equality of opportunity.

The study ended with special individual assignments. Some students read and reported. One interviewed teachers about their job experiences and reported to other members of his group.

Equality in Government Participation

Objective: In writing, students will report on a person who has been part of the struggle to obtain equal voting rights for all citizens of the United States.

Curriculum and Instructional Strategies: The topic for an introductory discussion was the Fifteenth Amendment which grants the right to vote to every citizen of the United States regardless of "race, color, or previous condition of servitude." The teacher described the flagrant disregard of this amendment

and the conditions in this country which led to the civil rights movement of the 1960's.

The students were then on their own to do individual research projects. Each selected a civil rights leader on whom to report. The reports had to include an analysis of the problem and a description of the way in which the leader attacked it. Students also attempted to make a personal evaluation of the leader.

Equality in Housing

Objectives:
1. Students will describe in a written report what constitutes slum housing, and the reasons for it.
2. Students will outline in a written report landlord-tenant relationships and problems.
3. Students will provide written alternative solutions to the problems and defend these in subsequent group discussion.

Curriculum and Instructional Strategies: After doing some background reading, the students discussed the problems of poor blacks after the Civil War and of poor immigrants to this country as they tried to find decent places to live. This historical background was the basis for further reading about the present housing problems of minority groups, especially in large urban areas.

Students were then asked to give their impressions of city slums. They were asked to list ten words that might describe these and to write three sentences about them. After this they examined pictures of slums and discussed life in these circumstances. There followed an affective activity in which they were to imagine their feelings if they lived in such places. Next they read a short but very accurate description of the horrors and dangers found in slum dwellings. After this they were asked to reevaluate their impressions of slums and check their present thinking against that found in their first

written descriptions.

A final section of this study compared the rights and points of view of slum tenants and slum landlords. Who is right? Students read adapted versions of two true stories from The Washington Post and The Saturday Evening Post about living in and maintaining slum dwellings. One story was told by a landlord, the other by a tenant. Students were asked to analyze the responsibilities of both parties. Following this, they read a third story about a landlord-tenant conflict and were asked to weigh the evidence and form a judgment.

Finally, students wrote papers outlining the problems of poor housing. They were required to provide their solutions to the numerous problems and also to defend these during a subsequent group discussion.

Federal Government

After studies of the right to freedom and equality, we wanted to teach how the three branches of the government functioned on a national level. We also wanted students to learn about participation in government and the rights and responsibilities of citizenship.

Time was closing in, and we were more than aware that we needed an economical and challenging teaching strategy, one in which students could teach one another and to which they could devote 100 percent of their attention. We therefore helped the students produce a questionnaire with which they surveyed both staff and other students at the MSSD. The resulting data were analyzed in a number of ways.

Objective: Students as a group will prepare a questionnaire on the functioning of the three branches of the federal government. After surveying MSSD staff and students, they will analyze the data and make graphs showing the correctness of response.

Curriculum and Instructional Strategies: To begin with, we divided the students into three groups, each lead by a teacher. Our plan was that the groups would become specialists on one of the following: the executive and

judicial branches of government, the legislative branch, or participation in the process of government. The last topic was studied by students about to be graduated since they were in greatest immediate need of understanding how to participate in government.

Having studied the topics, the students, now specialists, each wrote a series of questions. These were refined to exclude overlapping questions, and then contributed to a questionnaire entitled "Minischool Survey: Questions about Your Government."

The questionnaire was then administered to all Minischool students, in small teacher-led groups. Questions were read and discussed. The specialists were naturally only comfortable with their own questions; nonetheless, they were well motivated to learn the answers to the others. There seemed to be interest and pride in the questionnaire. But there was also a major problem: it was enormous--73 questions--and took far, far too long to administer. Rather regretfully, the teachers met that afternoon and chopped the questions down to 17.

This revised questionnaire was administered the next day to 34 staff members and 37 students. We felt that repeating the questions and checking the answers would be a real learning experience for the students.

Correctness of answers was analyzed by age and sex which involved making tabulations, finding percentages, and comparing them. In the process, various students took off on individual projects such as correctness of answers by home state, most difficult question by age, most difficult question by sex. The final results of the initial study were presented on a large chart-size bar graph.

We believe this questionnaire activity was valuable for a number of reasons: students learned a great deal about the federal government; they practiced

English and communication skills by writing questions and interviewing; they practiced math skills when analyzing the data. And, very importantly, the teaching of one another and the administering of the questionnaire were good affective activities. Equally important were the cognitive skills of analysis and synthesis. These were the levels of skills we tried to build into all activities.

Unit 4 should also have contained a study of the legislative process. We had planned to take an environmental bill step by step from the first efforts of its sponsors through the final decision by Congress. Unfortunately there was not enough time for this. We realized that the first part of the unit was taking longer than planned, but students were so motivated and learning so much that we obviously wanted to keep this the state of affairs as long as possible.

For the same reason we also had to omit the section on comparative government which would have made a good link with the next unit, Culture, which was on our outline as Unit 5.

Time was running out on us for other reasons, too. We had not been able to hold classes during the summer as we had originally planned. Also, in order to get in step with the regular school program, we agreed to end the Minischool a few weeks early.

We made a quick decision to move on to the unit on Change, knowing that we could include in it a great deal about culture, and that by studying change students could get an excellent summary of all they had learned about humanself, communities, environment, and government.

We did not regret that we had let the Government unit run overtime. Each of its subunits had provided us with the opportunity to fulfill our Minischool objectives. The study of government was a natural core for many affective role playing and projection activities on topics such as prejudice, stereotyping,

fairness, and so forth. It also lent itself to many activities designed to stress the cognitive skills of application, analysis and synthesis. Evaluation activities, such as weighing evidence and refining personal values, seemed to fall into place naturally. There was plenty of opportunity for work on language and communication and good and meaningful ways to include applied mathematics. In short, it was a fine topic for an integrated curriculum.

Unit 5: Change

The fifth and final unit of the Minischool curriculum was entitled Change. This unit was initially planned to be the sixth of the curriculum but as we hurtled toward the end of the Minischool's existence, we realized that we could not do both the projected unit on Culture and that on Change. Since students had already had several opportunities to study some aspects of culture in other units, we decided that the content of the unit on Change would for many reasons lend itself better to our plans for culminating the Minischool experience.

The unit was to be an application of knowledge and skills learned in previous units. We wanted students to be able to analyze information in view of the inevitability of change in the world in which they live. We believe that coping and adapting to change were very high priority skills for our students' lives.

Unit 5 was rescheduled for approximately eight weeks. However, the period following the Christmas vacation traditionally seems to suffer from more disruptions than other times of the year. This, combined with the fact that we were nearing the end of our two-year association, gave us the feeling that time was slipping away from us faster than ever.

The generalization which underlay this unit was that man's way of living is not static; changes occur in every facet of human life and are affected by both people and their environment.

Objectives: 1. Students will define the concept of change using historical examples.

2. Students will accept that change is constantly occuring around us.

3. Students will cite examples of change.

4. Students will hypothesize what effects change could have on

   a. their personal lives,
   b. society.

Curriculum and Instructional Strategies: The objectives show that this unit was focused on the past, present, and future aspects of change. Within this framework, students were able to choose one of the following areas for study: change in environment, changes in technology, biological changes, or change in the fine arts.

Within each case study, students were to demonstrate an internalization of the underlying generalization by participating in the study and applying previously learned knowledge and skills.

Once students had made their selection for case study, they were assigned to a teacher with a similar area of interest. Each of us then provided approximately one week of direct instruction consisted of inquiry activities, such as hypothesizing the meaning of change and providing examples of it. Expectations for each student were established within each of the case studies which proceeded to take different routes as we attempted to achieve our common content and skill objectives.

Changes in Environment

Objective: Students will prepare an illustrated booklet explaining how change has affected some aspect of our environment. They will present this as a slide presentation to a small group.

Curriculum and Instructional Strategies: After some general discussion about the environment and factors which influence its quantity and quality,

students choosing this topic were asked to identify a specific area they wanted to study from the point of view of the impact of change on the environment. Topics such as "endangered species," "the inner harbor of Baltimore," "water pollution," and "food problems" were chosen.

Students were asked to plan how they would conduct their research and report their work. The majority of their time was spent doing research and evaluating sources. Some used the Learning Resources Center after receiving instruction on the function of the card catalogue and Reader's Guide to Periodical Literature. Others went to the science teachers and other school personnel. The student who chose to do research on the inner harbor of Baltimore used sources in that city and made on-site visits. Finally, students had to collate their research, draw conclusions, and design their class presentations. These took the form of booklets supported by a presentation or slide show to the class.

Changes in Technology

Objective: Students will demonstrate a knowledge of past, present, and potential future changes and their impact in one of the following ways:

a. by writing a research paper that includes examples of past and present changes, and possible future changes;

b. by depicting with posters examples of past and present changes, and possible future changes;

c. by designing a slide presentation that shows examples of past and present changes and possible future changes.

Curriculum and Instructional Strategies: Students selecting this topic were asked to identify specific areas of change and technology they wished to study. They chose from transportation, architecture, medicine, machines, food, and clothing.

They had to plan their own research and determine how to present their

findings to the class. Several students decided to work on a group project; others worked individually. Each was required to view the topic from three perspectives: past, present, and future.

Much of the students' time was spent in the Learning Resources Center doing research. By the fifth unit, many students were capable of working with a minimum of supervision and assistance. About half chose to make posters for their projects rather than to write research projects.

Biological Change

Objectives: 1. Students will write an evaluation of each of the following, including advantages and disadvantages of each:

a. the use of cloning and/or test-tube babies;
b. freezing bodies for the future;
c. using robots and computers.

2. Students will discuss in writing

a. two reasons why over-population may occur, and
b. at least one solution to the problem.

Curriculum and Instructional Strategies: This portion of the unit on change was to a large extent based on the book, The Future, in the Scholastic Contact Series, with some additional readings in Search and Read magazines. Although we had wanted all the Minischool students to do independent research in the library, it was not possible for those studying biological change to do so. They were not especially good readers and would not have been able to handle many of the technical articles on the subject.

There was one exception to this: one student wanted to do independent research on the evolution of modern man and to make predictions about the future appearance of human beings. He produced a written report at the end of the unit.

Essentially, however, the other students read assigned materials and discussed them in class. The emphasis was always on analyzing the problem and,

having looked at the advantages and disadvantages, making a personal evaluation. Comprehension of highly scientific material was not required. Students read material in The Future which basically tells what changes might occur; it describes how they would be brought about on a very superficial level only.

The first topic that the students took up was "People of the Future," which began with discussions of tampering with the mind through electrical stimulation of the brain. They had no trouble with this concept and were able to list its advantages and disadvantages easily.

The class then engaged in several group discussions around the topics "cloning," "test-tube babies," and "over-population." Students seemed to be repulsed by the first two topics and had a difficult time accepting the third as factual.

Finally the students used a teacher-prepared worksheet to write a rough draft of a paper on the three topics mentioned above. The draft was discussed individually with each student and revisions recommended in terms of content and grammar. Students then wrote their final reports to meet the objective.

Fine Arts and Change

Students selecting this topic were asked to select one of the following areas of study: architecture or design, art or photography, music, dance, or a combination of music and dance.

Objectives: Objectives were then determined for each student separately. An example of such an objective is:

> Design a house of the future and make a sketch of it after investigating various past and present architectural designs.

Curriculum and Instructional Strategies: Students were expected to make use of a wide variety of resources within the classroom and the Learning Resources Center. Students were expected to do research on their topics before

proceeding with the actual project. Regardless of the art forms chosen for study, students were asked to explain how changes in these paralleled social or environmental changes. As already noted, one student chose to design a house of the future, while another studied the changes in paintings and photography and made a slide show for his project.

Although all five curriculum units developed by the Minischool varied in one way or another, this unit on change was perhaps the most strikingly different. In the first four units, a great deal of preparation went into the actual development of curriculum materials. This kind of formal planning did not take place for this unit, except for the determination of objectives, format, and scheduling. The reasons for this were, first, that the unit allowed students an opportunity to apply and then synthesize content learned from the other four units. To this end, students were permitted to select their own topics to study. Secondly, we felt that the students could handle more kinds of independent research activities with varying degrees of teacher supervision.

This unit was successful because of the ability of the Minischool students to work in an environment that was both comfortable and familiar to them, and at a time when students and staff had built up a great deal of confidence in and respect for each other.

The Skills Curriculum

All our curriculum was not interdisciplinary; we never intended it to be. Finding the right balance between the interdisciplinary courses and the skills courses was a problem which we struggled with for a long time. The following chapters will describe our various solutions.

Communication

Writing and reading skills will be covered in another portion of this report. This portion will emphasize speaking, expressive and receptive manual communication, lipreading, and use of auditory skills.

Objectives:

1. Students will show significant skill improvement in expressive communication:
   a. speaking,
   b. writing,
   c. manual communication.
2. Students will show significant skill improvement in receptive communication:
   a. reading,
   b. manual communication,
   c. lipreading (as applicable to the individual),
   d. use of auditory skills (as applicable to the individual).

Curriculum and Instructional Strategies: All Minischool students were given communication evaluations before and after the two-year Minischool period (see section on evaluation). At the beginning of the Minischool planning period, the decision was made that work on all the above skills would occur within the daily Minischool classes rather than during a specific communication therapy period. Those students with hearing aids or who were known to have potential use for amplification were identified to the entire team. The use of simultaneous communication at all times became a part of the Minischool's communication policy. When new vocabulary was introduced in the courses, every effort was made to encourage students to fingerspell, sign and say the new

words. Throughout the program, students were encouraged not only to write ideas and opinions, but also to present them to the group using speech and sign. Affectively, much emphasis was placed on listening skills and using communication modes most appropriate for particular audiences.

In the fall of 1974, the decision was made to use the Biocoustics Group Amplification System with students who were identified as having potential amplification but who did not have hearing aids or had stopped using them. Those students were scheduled into a formal Minischool communications course which stressed the use of auditory input and speech production. One team member, the speech pathologist, taught this course. The vocabulary used for the training sessions came from the Minischool core curriculum and the math and English skills classes. These communication classes were successful and motivating, and, as a result, two students acquired their own personal hearing aids. One student was found to be greatly bothered by auditory input. In fact, the recommendation was made that the student not be encouraged to use amplification of any sort because it was a source of so much pain and dizziness. After new hearing aid evaluation, the process of acquiring hearing aids for two other students was begun.

Communication classes involved group work in which individuals worked on improviing their auditory discrimination and speech production skills. The classes were scheduled twice a week for each group.

During the spring of 1975, the communication classes grew to include those students who had personal aids. Again, emphasis was placed upon discrimination skills and speech production. At this point, one class was team-taught by the speech pathologist and the mathematics specialist in which math vocabulary and concepts were emphasized and used for auditory and speech improvement. By this time, 14 of the 21 Minischool students were scheduled into the communication

classes.

Only one communication class was offered in the spring of 1976, and it, too, was team-taught--this time by the English specialist and the speech pathologist, with the vocabulary from an MSSD Vocabulary Development Project. Classes were scheduled for twice a week for one hour each with eight students. Auditory training, speech production, correct sign usage, and fingerspelling were stressed as well as learning definitions and the proper use of new words in different situations.

While the special communication classes continued, student progress in improving communication skills was discussed in the regular staff meetings and reported to parents in the regular Minischool reports. Included in the discussions and reports were observations made by all team members about particular students and their skills as observed in class. All team members participated in evaulating each student's communication needs and in planning his or her communication program. Contact with the MSSD Communications Department was frequent, especially for purposes of evaluation.

General Observations and Problems: All team members made definite consistent efforts to use communication techniques most helpful to the students. Real efforts were made to use sign language modes appropriate for the language levels of students. In addition, consistent emphasis was placed on teaching signs and fingerspelling for new vocabulary. Consistency of auditory signal was maintained in class. Everyone used speech.

Very little emphasis was placed on structured lipreading skills. Work with students in this area was informal, and no actual remediation programs were developed.

Of definite value were the efforts to encourage students to use both speech and sign when possible. Without exception, all Minischool students and

teachers used both consistently in formal class situations.

The room used by the Minischool was too small and acoustically unsuitable to permit use of group aids by all teachers in regular classes. It would have been of great value to all students to have had the use of the group aid during class time.

As a whole, students were conscious of aids and aware of the upkeep necessary to maintain a properly working hearing aid. With two exceptions, all students who had personal aids used them continually without having to be reminded.

Affectively, students improved a great deal, especially in their discussion skills--their ability to attend to the ideas and opinions expressed by others.

Statistical Information: Of the 21 students in the program, 17 were identified as benefiting from amplification. At the beginning of the program 12 students had their own personal hearing aids. By the end, two additional students received personal aids, hearing aid evaluations (HAE's) were recommended for two others, and one student received the recommendation to discontinue all use of amplification.

During the course of the two-year Minischool, 14 students received special communication classes. Of the original 17 identified as having potential for amplification, only three did not receive any of the communication classes. One student was out of school so much that scheduling her into a course was impossible. However, she was one of the students recommended for further auditory testing, including an HAE. The remaining two students demonstrated excellent auditory skills in class, but because of other more pressing needs fit more appropriately into other skills classes.

Language Arts

Objectives: Through writing personal journals and essays expressing opinions, organizing research into reports, writing creatively, studying vocabulary, reading and discussing plays, poetry, and current events, students will improve their comprehension skills, abilities to make analogies, draw comparisons, use new vocabulary--in short, will demonstrate improvement in reading and writing skills.

Curriculum and Instructional Strategies: The curriculum described here was basically one of reading and writing, although it also included such typical language arts activities as group discussion, movie viewing, and play reading.

Reading activities were of two kinds: reading for pleasure and reading for information. Sometimes material was chosen because of individual interests, other times because of its relationship to the core topic.

A variety of types of writing was emphasized. Research, organizational, and reporting skills were, in general, related to core topics; creative writing tended to be less so. Not related at all was a journal writing project in which students made frequent, sometimes daily, diary entries.

All the team teachers felt that language skills should develop through work related to the core curriculum. In such a relationship, vocabulary and concepts are constantly reinforced. But the degree of relationship raised a number of questions: Should all reading and writing be included in the core classes? Should there be separate but related "English" classes? Should there be unrelated skills work?

A variety of schedules was tested in an attempt to answer these questions, and in the summer of 1975 the Minischool teachers found what they considered to be good answers. They decided that reading and writing, whenever possible, should be related to the core topic; that they should be taught in separate language arts classes; that they should also be included in the core curriculum classes; and that separate unrelated structured writing classes should

be held daily. We had come a long way since the first unit, Humanself.

During the first unit of the core curriculum, the approach to language was basically diagnostic. Although vocabulary and paragraph meaning achievement test scores were available, the team regarded them with suspicion, and felt that actual work with students would provide a better measure of reading ability.

The reading material used in the classroom most frequently for this purpose was the Science Research Associates (SRA) Reading Laboratory (2A). Time was set aside during flexibly scheduled days for SRA work. The students were also encouraged to read for pleasure at home and to report on their reading.

A Goal Attainment System (GAS) was used as a motivating device. This system specifies that students and teachers sit together to plan goals. The student either reaches the goal, exceeds it, or misses it, and is awarded points accordingly. Students and advisors established goals for quantity of material to be read, new vocabulary to be learned and used in sentences, and for reporting.

Reading about current events was also urged. Two team members wrote a daily newspaper, "The MSSD News," which students were expected to read and discuss every morning. (The social studies section of this report contains more information about this.)

The advisors also worked with students on a journal writing project. Students were given spiral-bound notebooks to use as journals and frequent writing was encouraged and often required for homework. The response varied according to interest, naturally, but a great deal of writing took place. This project continued throughout Unit 1.

There was also an attempt to include writing activities in the core

curriculum although the Unit 1 topic, basically anatomy and physiology, did not lend itself easily to such work. Students were often asked to write responses to questions, and the form as well as the content of the writing was examined carefully. Sensory writing was planned as a part of the subunit on the senses, but had to be omitted because of the pressure of time. A related work of fiction, a rewritten version of a story by William Saroyan, was included as reading enrichment.

The teachers considered the diagnostic aspect of the first unit's language curriculum satisfactory. They also felt that students were receiving a satisfactory amount of English instruction, although the problem of relating it to the core curriculum had not been solved.

The students, however, were not of the same mind. Although they had many opportunities to practice and learn English, these were not always obvious to them because of the lack of traditional structure. They were used to a departmental system in which English was increased by the unfamiliarity of an interdepartmental program. There began to be rumblings: the Minischool does not teach English.

During Unit 2, Communities, the team continued to believe that langauge development should stem from the core topic, and began detailed discussions of specific objectives for the entire Communities unit. Reading, writing, and discussion lessons would be carefully written into the curriculum. They would be included in "unit books" that would be prepared for each student.

Students were grouped according to three levels of ability. To arrive at these groupings, the team considered three factors: paragraph meaning scores on the Stanford Achievement Test, ranking on the test of cognitive ability (described in a subsequent section of this report), and teacher observations.

The unit books were then compiled. They contained combined social studies and language lessons on three levels of reading and cognitive ability. The two lower level books included an instructional package on paragraphing and outlining, reading selections about both rural and urban communities, comprehension questions about reading, vocabulary drill, practice at questionnaire writing, and report writing exercises. The top level book contained most of the above plus directions for individual work with reference books in the school library.

The team felt well satisfied that appropriate language objectives had been met during Unit 2. The students, incredibly, still did not seem to be aware that language learning had taken place. There were more rumblings: the Minischool is still not teaching English. Apparently students were not able to see the langauge component in the unit books, even though the books' greatest emphasis was on language. The topic was communities, and communities meant social studies. They could not recognize the English lessons for what they actually were.

So, although the team still felt that language instruction should be related to the core topic, and the relationship between concepts and vocabulary was still valued highly, an English curriculum was prepared to be taught during English class.

The various facets of the Unit 3 topic, Environment, were reflected in the activities, but the objectives were those of any typical language arts course: Students would have reading experience in both prose and poetry, would show comprehension, make analogies, develop vocabulary. They would write essays expressing opinions, and would be encouraged to try creative writing. There would be more work on research, outlining, and reporting. Specific objectives varied for each student, established by the English teacher

and based on her knowledge of each student's writing skill.

The reading program was individualized for students according to the formula described above in Unit 2. In Unit 3, it was possible to provide reading material on five levels of difficulty--four levels of the Field Publications Kaleidescope Readers and one level of the Reader's Digest Adult Skill Builders.

When the core topic was "How the Earth Began," students studied Greek and Roman mythology and were therefore in a position to contrast both the scientific and mythological explanations of creation. To accompany the topic "Natural Resources: Climate, Land, and Water Forms," they read stories about animals and about people in conflict with nature. When they were engaged in case studies about different geographical areas, they were asked for creative writing, the stimulus for which was a series of film strips on the power of nature. Students were asked to base their stories upon such natural disasters as floods, hurricanes, and forest fires. The case study teachers also required students to read selected materials and to write formal reports on the different geographical areas.

By Unit 4, the rumblings about English were dying away. Some students, however, felt that they needed more work on sentence writing--a diagnosis with which both the English and communications teachers agreed wholeheartedly--and a new course in structured writing was offered. (This has been described earlier in this report.)

This seemed to be the winning combination. Students even took the trouble to tell the teachers that they were pleased with the curriculum. The teachers felt satisfied that they had created many opportunities for spontaneous and natural language, and were also offering needed help with structure.

The language arts material provided during the unit on government varied.

One group of history buffs read an adaptation of Stephen Crane's The Red Badge of Courage, while another did outside readings on famous American leaders. Other students read stories about minority group persons who had been deprived of their Constitutional rights.

During the unit on Change we continued to offer both the language arts and the structured writing courses. Research and reporting were required by the core topic as well. In this case it was difficult to find related material for the language arts course. We had thought of using science fiction, but it would have had to have been rewritten and there was not time for this. We therefore offered a general language arts course using material on a variety of topics.

Classroom Environment: The team felt that the classroom itself could be used to motivate reading. Accordingly, it was stocked with every kind of reading material that could be found. A large table was spread with periodicals that included the usual student newspapers and magazines, as well as books and comic books. Bookcases held every low-level, high-interest book that the team learned about. Some books duplicated those in the school library but the teachers knew it was important to have them close at hand so that students could be urged to open them whenever they had a little time.

A large investment, but a wise one as it turned out, was the World Book Encyclopedia, which was in constant use from the day it was put on the shelves. Several students seemed to be reading their way through it.

The team felt that this "total immersion" philosophy did indeed motivate reading. The books did not have to be checked in or out, but were simply there for the taking. The World Book could be pulled off the shelves at will with none of the formality of going to the library reference section. Many students responded to this warm and free atmosphere by doing a great deal of reading, and

many acquired some of the confidence that is necessary if good functional reading will ever occur. Only time can tell if these students develop into habitual and confident readers.

Structured Writing

During the first year of the Minischool program, each student's language program was developed concurrently with the core curriculum. During the latter part of the spring of 1975 and during the summer of 1975, the team met to discuss the students' language program. Was it actually meeting individual language needs? In many ways, students were being exposed daily to language and communication work. However, the team identified one major weakness: there was limited success in attending to individual expressive writing skills. Because of the variety of English writing skill levels manifested by the Minischool population, and because of information received from professionals from another interdisciplinary program,[11] the decision was made to create writing skills classes small enough to meet individual needs of students. Beginning in August of 1975, skills classes in structured writing were offered by the Minischool to all 21 Minischool students.

Objectives: All students needed work on their writing skills. Naturally, different students needed different emphases. Because of this, a large number of objectives were determined for the structured writing course from which a teacher could draw those appropriate for a particular class:

1. Students will identify a complete simple English sentence when it is presented in written form.

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[11]The John Adams Program in Portland, Oregon, is one which consists of "schools within a school." The principal of the program and one of the eight school directors visited the MSSD and met with the Minischool team. During one of their meetings, they shared with the team their belief in the importance and ultimate success of skills classes even in an interdisciplinary program.

2. Students will arrange the correct number of given words in proper English word order when they are presented in written form.

3. In any given simple English sentence, students will choose the correct preposition of three for that particular sentence.

4. Students will identify the correct function word (preposition) to show the proper relationship between two objects.

5. In a structured situation, students will produce a number of descriptive words to describe nouns.

6. In a structured situation, students will produce a number of descriptive words to describe actions.

7. Students will identify and label adjectives and adverbs in simple sentences.

8. Students will fill in an acceptable adjective or adverb in blanks provided in a written paragraph.

9. Students will match the proper sign with the written adjective, adverb, or preposition when these appear in isolation as well as in simple sentences.

10. Students will generate the following sentence patterns:

    noun verb
    noun verb adjective
    noun verb adverb
    noun verb noun (1)
    noun verb noun (2)
    noun verb noun (2) noun

11. Students, given a specific concrete location, will describe what they see in a simple English sentence and in correct word order.

12. Students will identify and label independent clauses.

13. Students will identify and label dependent clauses.

14. Students will identify and label kinds of dependent clauses.

15. Given two independent clauses, students will join them with an appropriate connector.

16. Given an independent clause and connector, students will generate a compound sentence.

17. Given a connector, students will generate a compound sentence.

18. Given an independent clause, students will generate a complex sentence using an adjective or adverb clause.

19. Given a dependent clause, students will write appropriate independent clauses to form a complex sentence.

20. Given the adverbial connector, students will generate a complex sentence.

21. Applying the above skills, students will write paragraphs giving directions so clearly that readers can ascertain the destination.

22. Given a short story, paragraph, or short play, students will finish the story, paragraph, or play.

23. Applying the above skills, students will generate descriptive paragraphs about any topic of their choosing: experience, opinion, idea, etc.

24. Students will generate a short story of at least two pages.

The selection of these particular objectives was influenced in part by Bloom's treatment of early language development objectives.[12] His suggested sequence of objective attainment was very useful.

As previously mentioned, all students were not necessarily expected to attain every objective on the list. Each student's entering writing skills were considered. In most of the initial classes, much diagnostic teaching took place along with informal testing. For example, using the sequence of objectives as a guide, teachers (1) determined if students could recognize a complete simple sentence as opposed to an incomplete one; (2) attempted to determine students' knowledge of prepositions, modifiers, and articles; and (3) had students generate initial writing samples. Only after the above diagnostics took place did teachers determine which objectives would be used with which group.

[12]B.S. Bloom, J.T. Hastings, and G.F. Madaus. Handbook on Formative and Summative Evaluation of Student Learning. McGraw-Hill; New York, 1971.

Classroom Management: The structured writing classes were handled by two team members, one whose specialty was English and one whose specialty was speech pathology. The classes continued from August, 1975 until March, 1976 when the Minischool program came to a close. From August through December 1975, students were scheduled into these classes two or three times a week for 45 minutes each. Beginning in January, each student was scheduled into the structured writing classes five days a week for one-half hour each day. This increase in frequency resulted from our belief that more carryover and feedback would occur when students were exposed to activities daily.

The maximum number of students in a class was six; all were identified as having similar writing problems. Although similarity of writing problems were used to identify grouping possibilities, the groups did not necessarily contain skills. Often a student who had manifested a high cognitive skill level in other course work exhibited difficulty with writing a clear, simple English sentence. Conversely, students who were identified as having low cognitive skill levels in other courses were sometimes the students who had little difficulty writing clearly. The same held true for those students who normally exhibited more natural English language skills when using sign and speeech. In addition, we found that a large amount of residual hearing and an effective use of it did not generally predict which students would have better writing skills. In summary, then, the four groups were characterized by students who basically shared the same writing problems but not necessarily the same oral communication skills or cognitive skill levels.

Curriculum and Instructional Strategies: The objectives themselves give a good idea of the kinds of activities that occurred. The teaching technique was directive, using group participation and group and individual drill and practice. Teachers gave individual attention to students' written work, discussing with students the positive and negative points, after which students rewrote their papers. Much of the written work was presented to the entire group by the writers, and they criticized each other's wrok regularly. The drill and practice ideas and teacher presentation techniques were adapted from a variety of commercially produced curriculum materials. In addition, numerous activities and worksheets were written by the teachers. Most of the student writing originally took place in class. Often, the students were responsible for making revisions for homework.

In the structured writing classes we were able to meet the writing improvement needs of the students more directly. The individualized nature of each class provided teachers with information about students' levels of performance. As a result, students' programs were based upon skill need with specific activities planned accordingly.

In addition, the teachers responsible for the skills classes were able to bring information to the team regarding the writing skills of each student so that these skills could be worked on in other Minischool courses. The reverse was true as well: other team members could give information about the writing each student was doing in other Minischool classes so that this work would be supported in the structured writing classes.

The skills classes also allowed for continual feedback and reinforcement between student and teacher, and student and student. Students were able to work at their own pace to meet objectives and reporting of goals attained by each student was easier and more specific. But there were problems, as would

be expected the first time around. Fortunately, however, these were few and mostly related to time. The team regretted not starting these classes earlier. The classes would have been useful one full year before they were initiated, both in providing support to the other Minischool courses and in meeting particular writing skill needs of students. The old "hindsight" adage certainly applied here.

Also, even with the small number of students in each class, teachers had difficulty spending enough or equal individual attention among the students. At five days a week, one-half hour per day, some classes could have benefited from at least an extra 15 minutes. This additional time could have been used to support more effectively the writing done by students in their other courses as well.

Structured Language Improvement Project (SLIP)

This project is now being developed at the MSSD. One teacher and five Minischool students spent ten weeks during the spring of 1975 testing the feasibility of some of its activities. In Gallaudet College's Pre-College Programs Perspectives of May 1976 it was described:

> SLIP ("Structured Langauge Improvement Project") teaches deaf students the use of certain important English grammatical constructions in context. The course tries to reflect the way hearing children learn language by repeated attempts to use a construction correctly in different situations. Rules for use are learned inductively; students learn to understand the syntactical differences in word usage in terms of their semantic origins. This important course is concerned with the fundamental ability of deaf students to express themselves in formal English.

The program includes a wide range of teaching strategies, including such motivating devices as mystery stories, picture stories, bingo and checker games. It is so structured that students almost always produce correct English sentences, thus reinforcing the habitual use of good English.

SLIP also includes the use of the Mediated Interaction Visual Response

System (MIVR), in which the teacher and each of the students has an individual overhead projector. Every sentence a student writes is flashed on a screen and discussed by the group, providing the opportunity for instant information about its correctness.

Social Studies

Objectives: Written into the Minischool proposal were several global goals that were to guide the team in the development of an interdisciplinary curriculum. While all of these were useful for all areas in greater or lesser degree, only one goal could be applied directly to the development of a social studies curriculum. This was the goal that required the Minischool to develop curriculum and strategies that would foster a significant improvement in the ability of Minischool students to think critically.

Curriculum and Strategies: During the development of the Minischool's interdisciplinary curriculum, we never thought of developing a separate and distinct social studies curriculum. Only in retrospect have we tried to identify the social studies components of the Minischool curriculum, but from the earliest stages of the program, the team was keenly aware that our interdisciplinary curriculum would rely heavily on the content areas traditionally thought of as the social sciences.

Because of the need to focus on critical thinking abilities, the team arrived at a consensus: we would apply strategies that are often associated with the "inquiry" approach to the social sciences. This approach has been popularized by Edwin Fenton and others, a good resource in this area being Fenton's The New Social Studies.[13] Affinity for the inquiry approach also led the team to adopt the scope and sequence of a series of texts collectively

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[13] Edwin Fenton. The New Social Studies. New York: Holt, Rinehart & Winston, 1967.

entitled, The Contemporary Social Science Curriculum which is extremely well developed and includes a hierachy of underlying generalizations and performance objectives. Because of the quality of the work encompassed by this series, we found ourselves constantly referring to and using it.

The team member with previous experience in the MSSD's Social Studies Department served as a resource for the Minischool team in the development of curriculum materials and strategies using social sciences as a content base. In developing an interdisciplinary curriculum such as this, it is very important that one team member be familiar with the resources available in the social sciences.

While this team member with social studies background served as a resource person, all members of the team participated in the development of materials and strategies in the core curriculum units, as well as teaching them after they were developed.

At no time during the two-year history of the Minischool was social studies considered a separate discipline. The closest we came to such a course was the current events program offered during our first nine months. The experiences we brought to the Minischool program indicated to us that most of the MSSD's students, and probably most hearing impaired students, did not possess an understanding of what was happening in the community, country, and world around them.

We attributed this lack of awareness both to a deficiency in reading skills required to read most daily newspapers and weekly news magazines, and to the barrier against the almost constant barrage of information that batters hearing persons. To overcome these obstacles, we had to establish a need within the students to know what was happening in the world and to establish new information-acquiring habits.

Two Minischool team members had been writing a daily newspaper for all the

MSSD students for over a year and a half before the Minischool program began. This newspaper actually consisted only of several attractive news stories from The Washington Post rewritten on an appropriate reading level for our students. We resolved that this approach be continued within the Minischool and that 30 minutes be set aside each morning for a discussion of the news. We also made available each morning a videotape of the previous evening's ABC Evening News - Captioned. This approach was continued for the first nine months of the Minischool, after which time we believed that students were reading newspapers and watching news regularly and did not need the formalized current events class every day. Throughout the Minischool, however, the daily "MSSD News" continued to be written by a Minischool staff member.

A brief review of the five core units of the Minischool curriculum reveals a number of the traditional social studies disciplines central to their goals and content. In Unit 1, Humanself, anthropology and psychology were part of a basically science-oriented unit. In Unit 2, Communities, there was a great deal of economics, sociology, political science, geography, and history. All the disciplines of the social sciences were present in the curriculum of Unit 3, People and the Environment. Unit 4, Government obviously concentrated on political science and history but also incorporated other disciplines such as economics, sociology, and psychology. Our final unit, Change, was an application of all the previous experiences we had shared in the Minischool and, as such, used all the social science disciplines mentioned thus far.

The interdisciplinary curriculum of the Minischool was actually similar to much of the traditional social sciences content. While we taught this curriculum in a highly integrated environment, it would still be possible to use it effectively in a traditional social studies classroom. In other words, it is not necessary for an interested teacher to restructure an entire school in

order to make use of it. The entire curriculum could be adopted by an integrated social studies department, or individual units could be taught by a single teacher as isolated courses. Naturally enough, we believe that the highly integrated interdisciplinary approach is the better direction.

The area of current events, while not always well organized or highly polished, was highly satisfying to students and teachers alike. From our own observation, Minischool students have a keener interest in, and need to know about, the world about them than they had before. We believe that many of the students have established strong news-acquiring habits that could well have significant and lasting impact on their lives.

A final observation would be that the Minischool concept is a dream come true for any social studies teacher who desires to help make social studies relevant tothe lives of students.

Mathematics

As a subject of broad, practical application, mathematics is particularly susceptible to integration into an interdisciplinary curriculum. This was the intent of the Minischool program and was kept in mind when the six curriculum units were chosen. However, in attempting to integrate applied mathematics into such a curriculum, the content and cognitive levels on which students are operating are factors which determine not only the depth to which the mathematics can be integrated, but also the extent to which it is educationally sound to deal with applied mathematics only. After a careful assessment of the Minischool students (which will be described later), we decided that there was a definite need to teach mathematics as a separate skill as well as to expose students to some ways that mathematics is part of and a tool for other studies.

Objectives: 1. Students will understand basic underlying mathematical concepts.

2. Students will apply mathematical knowledge and skills to problem situations.

3. Students will analyze computations and problems abstractly.

4. Students will communicate processes and reasoning to others.

5. Students will approach the "doing of math" in a careful, thoughtful, and mentally orderly manner.

6. Students will feel more comfortable with math and have more confidence in their ability to deal with it.

7. Students will feel more motivated toward the study of mathematics.

Assessment

The baseline data we had on each student was two-fold: (1) scores on three Stanford Achievement Test math subtests--computation, arithmetic concepts, and arithmetic application, and (2) the current level of placement in the Individualized Mathematics Sequence (IMS) Program which had been used by the Math Department with all but two of our students before they entered the Mini-school (the two exceptions were students in an algebra program).

It was decided to let students continue work in the IMS Program, but to have the Minischool teachers work closely with them. Each student had one-to-one work with a teacher for a period of time, as well as very small group work. We were concerned with trying to pinpoint each student's level of functioning with regard to knowledge of content, critical thinking, and attitude. We were aware that this method of "diagnosis" was an informal one and better described as prescriptive teaching; however, we believe it was valid, given the skills of the teachers who worked with the students. This does not refer to mathematics-teaching skills, but rather to the ability to watch for indicative behaviors, to ask questions at the right moment, to know when to explore a concept with a student and when to leave that student to try it alone. This is not to say,

however, that having one member of the team who has had experience in teaching math was a dispensable factor; it was very necessary for adding depth to the assessment.

In addition to trying to assess content level and cognitive and affective functioning, we also wanted to determine whether any particular teaching strategy would be more or less effective. Students' prior experience at the MSSD had consisted of individual rather than group work.

We found that there was a general weakness in basic computation among the students, and also in understanding basic concepts of whole numbers, fractions, and decimals. In addition, students' approach to "doing mathematics" was, on the whole, random and disorganized, giving evidence of little thinking and much mindless mechanical operating. On the basis of the assessment, it was decided that the two students currently taking the algebra course remain with it, that two additional students enter it, and that the remaining 17 begin a basic mathematics program taught separately from the interdisciplinary core curriculum. We also realized that the depth of the mathematics to be incorporated into the core would have to be limited.

Additionally, we decided that students in the basic mathematics program would not work individually but rather in small groups. We believed the interaction would be beneficial and that it would enable the teacher to be more aware of the thought processes that were taking place.

Curriculum and Instructional Strategies

The Skills Program: Part 1: The first part of the Minischool math skills program was designed to coincide with the unit on communities and was taught by all the Minischool teachers. It consisted of two parts, economics and the comparison of number facts. There were two levels designed for students of different abilities. Students worked in small groups around a blackboard and were

taught each lesson before they did any independent book work.

The topics of money, wages, take-home pay, savings accounts, and buying were planned for the economics section. For the comparison of number facts section, graphs, ratio, proportion, and map scale were planned.

It became obvious early on that the program was too ambitious and that students would not be able to progress through as much material as had been prepared. Some of the lower-level students bogged down in problems dealing with time computation or with rate concepts. Since these topics were considered very important, we decided to emphasize them and eliminate some of the others, such as savings and graphs. None of the higher-level students reached the ration and proportion activities because they had slowed down on maps and map scale.

There were four students taking the elementary algebra program at this time. Three of them worked on expressions, sentences, formulas, and exponents; the other worked on factoring.

The Skills Program: Part 2. When the Environment unit of the core curriculum began, the math program turned to an emphasis on the fractional number system. We wanted to develop a real facility with a comprehension of this system. The students were divided into three groups according to their content knowledge and cognitive skill level. For some students it was necessary to start at the very basic knowledge level, while for others we could begin at a basic conceptual level. For the third group, it was possible to begin more immediately with a mathematical reasoning and problem-solving approach. The objectives for each level are listed below. The materials used included an excellent set of slides, manipulative devices, and teacher-prepared worksheets. For this unit only the mathematics teacher taught the program and the students had classes three times a week.

The algebra students continued through integers and equation solving.

Objectives: Level 1, Lowest Level

1. Students can correctly and easily solve computation problems involving equivalence, comparison, addition, subtraction, multiplication, and division.

2. Students can clearly demonstrate to others the method used to arrive at answers in those computation areas mastered.

Level 2, Middle Level

1. Students can correctly and easily solve computation problems involving equivalence, comparison, addition, subtraction, multiplication, and division.

2. Students can clearly demonstrate to others the method used to arrive at answers in those computation areas mastered.

Level 3, Highest Level

1. Students can correctly and easily solve computation problems involving equivalence, comparison, addition, subtraction, multiplication, and division.

2. Students can clearly demonstrate to others the method used to arrive at answers in those computation areas mastered.

3. Students can clearly explain to others the mathematical reasons why an answer to a computation problem is correct.

4. Students can correctly and easily solve one and two step word problems which involve fractions.

5. Students can clearly demonstrate and explain to others how to arrive at the correct answer to a word problem.

Affective or Attitude Objectives for all Levels:

1. Students will demonstrate more confidence in their ability to understand and deal with mathematics.

2. Students will demonstrate a more careful, thoughtful, and orderly approach to solving math problems.

The Remaining Program

Beginning in the fall of 1975, students were placed in one of four groups based on their level of functioning. The makeup of these groups remained constant until the end of the Minischool and was as follows: three students continuing into the second half of an Algebra I program, five students beginning an Algebra I program, four students in a pre-algebra program, and nine students in a practical math program.

Algebra: The continuing algebra students completed units in Elementary Algebra, Part 2 by Denholm and Dolciana on products and factors, quadratic polynomials and factoring, working with fractions, multiplication and division with fractions, and addition and subtraction with fractions. As in the past, there was a combination of group and individual work.

The beginning algebra students were placed in a newly developed MSSD algebra course, of which they completed Units 1 and 2. The objectives for these units are listed below:

Objectives for Algebra, Unit 1

1. Students will evaluate numerical expressions involving order of operations.
2. Students will evaluate algebraic expressions.
3. Students will simplify algebraic expressions using the distributive property and by combining similar terms.
4. Students will solve simple equations involving one and two operations.
5. Given a formula and values for all but one of the variables, students will substitute the given values and solve the remaining value.
6. Given a set of data, students will write an appropriate formula.

Objectives for Algebra, Unit 2

1. Students will understand the concept of negative numbers.

2. Students will use negative numbers to describe situations.

3. Students will operate with negative numbers.

It is important to note that although the materials, scope, and sequence were used, students did not work on the program independently. Rather, a lesson was taught to the group, and only when the concepts were understood did students work on textual material by themselves. The material was thus used for reinforcement as opposed to being used as the teaching stimulus.

The pre-algebra students were taught as a group in a program that dealt mainly with understanding the rational number system and solving word problems. At the end of the Minischool, all these students began the MSSD algebra program.

Practical Math: The practical math students had a program that stressed computation and consumer problems.

Objectives:

1. Given a consumer problem, students will recognize the mathematical operation(s) needed to solve it.
2. Given a consumer problem, students will perform correctly the necessary computations which will involve whole numbers and money and fractions.
3. Students will demonstrate and explain to others how a particular consumer problem is solved.

Math/Lanaguage

In addition to their regular math program, all students were in a math/language program for a period of about nine weeks using the materials from GO: Reading in the Content Areas, published by Scholastic Book Services.

The emphasis in this course was on helping students acquire the skills and background concepts needed for their study of mathematics, and, in addition, broadening and strengthening math-related vocabulary and sentence structures.

The exercises were designed to teach students how to question effectively how to look for and recognize organization patterns in math material, how to

use facts from their reading, and how to be aware of the special meanings and concepts of math vocabulary.

The Interdisciplinary Core Curriculum

A certain number of applied math activities were written into the core curriculum. During the Humanself unit there were measuring and graphing activities as well as computation during some of the scientific experiments. During the unit on Communities, there were activities related to traveling--measuring distance using map scale, determining expenses, figuring rates, and making estimates. The Environment unit had activities related to time periods and map skills. In the Government unit, there were data gathering and graphing activities as well as activities related to other ways of comparing data--percent, for example.

Counseling

Objectives: Counseling was included in the Minischool program as part of the team effort to meet two of the five global objectives:

1. Students will increase in ability for realistic self-assessment and goal setting.
2. Students will develop values.

While the development of these affective skills was fostered throughout the Minischool activities, counseling offered students closer focus on the affective, personal aspects of self.

Classroom Management: Counseling occurred mostly in groups and was handled in a variety of ways. The primary reasons for variety were to find out which approaches worked best with which students. Other reasons were the special needs and interests of students, the availability or lack of suitable materials, schedule changes, suggestions made by team members, relationships among certain students, and carryover between the Minischool core

curriculum and group counseling topics. All approaches used will be described later in this section.

Counseling took place once a week for an hour. During one quinmester, studets met twice a week at their own request. The team made recommendations for individual counseling, too, according to need. Counseling could be either personal or vocational; a decision to offer vocational counseling was based upon the availability of appropriate career education materials, results of achievement and interest tests, and student work history. The four Minischool seniors naturally received considerable vocational counseling and preparation in the second year of the program.

Students were asked to evaluate some of the counseling sessions, and a special form was developed for this purpose. It is unfortunate that these evaluations did not occur more frequently, but it was difficult to have students sit down during the last five minutes before lunch and give careful attention to filling out a form. The team's evaluations were helpful but they also were too infrequent. Ways should be found to have such forms completed regularly in future counseling/teaching teams.

The MSSD Division of Research and Evaluation was asked to evaluate the growth of students' affective skills; the findings of the videotaped pre- and post-tests appear later in this report.

Curriculum and Instruction Strategies: In the Humanself unit, some group discussions centered around the uniqueness of each individual's physical characteristics and reactions. The teachers, coordinator, and counselor planned and participated in activities set up to elicit reactions from students. Other Unit 1 discussions led into the affective areas of reproduction. Here most students were uncomfortable because they were rather young and also because they did not know some of their peers very well.

The affective activities in Unit 2, Communities, centered around the personal values of students. They met in small groups in which personal values were explained, but discussions usually veered toward impersonal and "safe" subjects because students had not yet developed sufficient trust in one another. The concept of learning and growing in affective areas as a result of their own group dynamics was a totally new one to these students. Interestingly, many students began to feel that they were missing out on things that were happening in other groups.

The discussion groups consisted of heterogeneous mixtures of sex and race, which was not always the best possible idea. The Minischool counselor now questions the wisdom of such heterogeneous groupings at a time when some students still felt uncomfortable with others.

By this time we had moved to larger quarters, and at the students' request began having our meetings in one large group. Personal values were still the general topic.

Stories from magazines were used to initiate discussions. Students talked about the values they perceived in the reading, and related them to their own experiences. Teachers joined the discussion and at times asked thought provoking questions. Questionnaires probing values were filled out and sent to the Division of Research and Evaluation. Students drew coats of arms for themselves, indicating on them what things they valued. The game "The Can of Squirms" was attempted but dropped when students displayed disinterest in the role playing required.

At the time Unit 3, Environment, was being undertaken, the team became concerned about student need to express feelings. They were aware that some of these feelings were negative, and thus planned activities using positive thinking approaches. Encouragement was given students to talk about the first

nice thing of the day, the most wonderful experience, the good points of the student in the next seat, and so on. This was enjoyable for all of us. Large pictures were sometimes used as stimuli for subjective responses. Some students, and not necessarily the low achievers, found expressing these responses a difficult task. They tended more toward concrete thought and had to be encouraged to try to express feelings.

For these activities, students were divided into three small groups with two team members in each group. The coordinator and aide participated as well. Once again, the groups were heterogeneous but did not remain constant, changing from week to week. We began using these small groups again because we thought it was the best way to reach all the students, and seemed the only way to permit some of them to express themselves.

For some time group discussion rules had been emphasized in the classroom and in group counseling. Once when the team was away on a staff development trip, the counselor thought a formal debate would help students follow group procedure rules better. The subject was "Busing," and the argument was heated. The debate, unfortunately, was rather unorthodox; rules for formal debate are difficult and our students were not familiar enough with them.

In Unit 4, Government, the counselor's concern was that students function as open, honest, listening, and supporting persons as they participated in groups. This type of participation naturally leads to greatly enhanced personal growth. The students themselves requested more counseling time, and we decided to establish a second counseling hour during the week.

During one of these hours, discussion groups would be led by the Mini-school counselor along with two others MSSD counselors. The material used was basically the NTL Learning Resources Corporation's 20 Exercises for the Classroom, which is a group of activities based on the techniques of sensitivity training.

The second counseling hour was led by the Minischool counselor, sometimes with the assistance of the Minischool team. These topics were closely related to the core curriculum.

After doing selected activities from 20 Exercises, some students expressed strong dislike for them, feeling that they were "games" for much younger students. Oddly enough, the MSSD counselors had been impressed by the way the students had participated, feeling that they had displayed really sophisticated "know how." The 20 Exercises were put away, however, and students picked their own topics for the remaining sessions. One in particular, "Why are girls always cool when boys talk to them?", produced a very lively discussion.

In the core curriculum lessons, students were studying the concepts of freedom and equality in the United States. We wanted these two concepts to have personal meaning for them and made special efforts to relate the affective activities to the cognitive. For the second weekly counseling hour, the counselor frequently selected topics suggested by the book, Prejudice: The Invisible Wall, in the Scholastic Book Service Contact Series. There was role playing of the problems of Irish immigrants in America. There were discussions of religious prejudice. Two movies The Skater Dater, and A Fable also stimulated good discussions. Students found some relevance in the concepts of "ingroup" and "outgroup." A short play acted by the teachers was the stimulus for a good discussion of stereotyping. The question of equality of the sexes was probably never settled, but it brought about some incredibly heated sessions.

We continued to have large group discussions throughout Unit 5, Change, although the group was not quite so large. Some students did not participate because they were receiving individual therapy or had jobs. The smaller group was more manageable and stayed that way until the end of the Minischool. The quiet students were now somewhat more demanding of their share of attention

and the more articulate ones were allowing them to say their piece.

The topics generally turned to the future: how to avoid disaster and how to improve the quality of life upon earth. The Dynamics of Change[14] was a source of information on overpopulation, the changes from past generations to those of the future, takeover by machines, and changes in the future. All discussions were closely related to the core curriculum lessons and helped students see the relevance of the issues to their own lives.

Group Dynamics as Seen in the Minischool Groups

That there were problems with group dynamics has been indicated already. Some students did not like other members of the groups. Small groups wanted to amalgamate into one large group even though this was not always the ideal situation. This was preferred by those who enjoyed being the center of attention, but we especially wanted these students to listen to others. The quiet students enjoyed listening to the discussions but were occasionally frustrated when they tried to express themselves and were not permitted to by the more vocal members.

The group atmosphere for a long time was not ideal for students to reveal their inner feelings. Peer opinion was highly valued, too highly in fact to risk revealing concerns and complaints.

Group discussions were used by some students to satisfy or to gratify personal needs. Some received very necessary support as a result of the attention paid them. Others used the group as a means of venting hostility.

When the focus was not on the personal opinions or feelings of the students, discussions were usually free and easygoing. When students became uncomfortable with a subject, they disrupted the discussion by acting silly

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[14]Don Fabon. The Dynamics of Change. Prentice-Hall, 1968.

or refusing to pay attention.

The girls were usually quieter than the boys. As they themselves said, the boys were immature and went into foolish arguments. This was only partly true, however. There were different levels of maturity between the sexes, but the counselor suspected also that the boys had a wider range of interests and thus had more to say.

It was observed that some boys would hush up a potential troublemaker in order not to rock the boat. These boys were fearful of upsetting the girls and eliciting their potential retaliation.

In spite of all these difficulties, we felt that the affective activities were a valuable part of the Minischool experience. The dynamics of the group changed steadily for the better as the Minischool progressed, some of the quiet students becoming more outspoken, some of the loud ones quieting down, some of the self-centered ones beginning to show concern for others. Especially toward the end of the two Minischool years, it seemed clear that a great deal of personal growth had taken place.

Conclusions and Recommendations: It seems best for students' all around needs to have their teachers and counselor working side by side on cognitive and affective growth. Because the counselor cannot be with all students all the time, teachers' observations of students become valuable in the course of counseling. In turn, the counselor can help teachers understand students better. Two years of being with the same students offered us the opportunity to know student strengths, needs, and weaknesses well and how to deal with them most effectively.

Recommendations for Group Counseling:

1. The videotape equipment should be set up and in constant use during each counseling session.

2. The topics should be of immediate interest to the students. Topics of a sensitive nature, such as peer relationships, prejudices, parental influence, and school can be handled when generalized.

3. Small groups should be the rule in order to allow each student equal participation time. Students should be allowed to pick their group members but encouraged to spread beyond their own immediate friends. Group members should be rotated for the sake of learning from as many people as possible.

4. The team should set aside time to plan each affective activity fully, and the whole team should participate in each group activity, sharing themselves with the students. While team members should allow the counselor to be the leader, they can be most helpful in directing discussions toward desired ends.

Recommendations for the Counselor:

1. For the most effective contribution to the team, the counselor should have in-service training or courses in child psychology, curriculum development and evaluation, and learning theory.

2. The counselor should have an aide to type and keep records of group and individual counseling sessions.

3. The counselor should help a department concerned with career development by (1) informing it of the students' vocational interests, and (2) counseling students with vocational problems or questions.

4. The counselor should have certification in teacher effectiveness training in order to be able to help train teachers. Teachers, in turn, can then help students better in developing listening skills.

5. The counselor should help in curriculum development in the affective areas.

6. The counselor should have the ability to work as part of a team toward common goals with plenty of give and take.

7. The counselor should have clear understanding of his or her role in the Minischool and in the school as a whole. The teachers and counselors should come to a full understanding of what is expected of the counselors. Are they, for example, expected to do a lot of vocational counseling or work station visiting?

Evaluation of the Minischool Program Model

Design

Four global goals had been proposed for the Minischool program which related to students' (1) affective development, (2) academic achievement, (3) communications and (4) cognitive skills. The summative evaluation was based on these. Implicit in these proposed goals was the expectation that students in the Minischool would demonstrate greater improvement in the dimensions identified than their peers in the regular MSSD instructional program. Certainly, the expectation was that students in the MSSD instructional program would not surpass Minischool students on the dimensions around which the Minischool designed its program. An evaluation design which would permit relevant comparisons between the growth of Minischool and regular MSSD students was necessary.

The development and evaluation design, selection of Minischool students and a comparison group of students, election of measures of the various goal dimensions, and data collection and analysis were the responsibility of the MSSD's Division of Research and Evaluation (DORE). A research and evaluation specialist was assigned primary responsibility, though the conduct of the evaluation involved several of the professional DORE staff. Minischool teachers were allowed input, but to preserve the integrity of the evaluation, ultimate control over procedures was retained by DORE. Minischool teachers were not told which students had been selected for their program until approximately three weeks before it began, which prohibited preliminary program planning for specific students and forced teachers to focus on planning for a representative group of students.

Student Selection

Two matched groups of 20 students each were selected to participate in the evaluation of the Minischool project. One group was expected to spend two years in the Minischool while the other group of students of similar age and achievement was to continue in the regular MSSD program as a comparison group.

The MSSD student population at the onset of the Minischool project was about 120, many of whom were not eligible to participate in the project because of their involvement in other research and evaluation projects of a conflicting nature. Because the Minischool project was to be of two years duration, it was important to select students who were likely to remain in the MSSD for at least that length of time. Therefore, students over the age of 17 as of September 1973, when Minischool students were being selected, were not considered eligible.

MSSD students who did not exceed the age limit and were not committed to other research and evaluation programs were compared pairwise on two subtests (Paragraph Meaning and Math Computation) of the Stanford Achievement Tests. Student pairs with the lowest combined differences between scores were identified as matched pairs. The 20 matched pairs with the best matched pairs (i.e., lowest absolute difference between scores) were selected to participate in the Minischool evaluation. One student of each pair was randomly assigned to the Minischool group and the other to the comparison group. Students assigned to the comparison group participated in the pre-testing in the spring of 1973, post-testing in the spring of 1975, and were observed during their academic classes, but were otherwise permitted to progress through their high school program like other MSSD students.

Characteristics of the two groups are summarized in Tables 1 through 10. The tables indicate that the matching procedure was successful in providing

very similar groups of students in age, sex, educational and family history. The two groups did not differ significantly on any of the ten variables summarized in the tables as determined by chi square and t-test comparisons.

Table 1

Age[1] Distribution of Minischool and Comparison Students

Age	Minischool Group		Comparison Group	
	N	%	N	%
13.3-13.9	1	5.0	4	20.0
14.0-14.9	6	30.0	7	35.0
15.0-15.9	2	10.0	2	10.0
16.0-16.9	11	55.0	7	35.0
Mean	15.66		15.09	
St. Deviation	1.13		1.21	

[1]Age as of September, 1973

Table 2

Sex of Minischool and Comparison Students

Sex	Minischool Group		Comparison Group	
	N	%	N	%
Male	8	40.0	9	45.0
Female	12	60.0	11	55.0

Table 3

Paragraph Meaning Scores (in grade equivalents) of the StanAT[a]

for Minischool and Comparison Students

Score	Minischool Group		Comparison Group	
	N	%	N	%
2.1-2.9	2	10.0	2	10.0
3.0-3.9	6	30.0	4	20.0
4.0-4.9	7	35.0	8	40.0
5.0-5.9	3	15.0	3	15.0
6.0-6.9	1	5.0	1	5.0
7.0-7.9	1	5.0	2	10.0
Mean	4.41		4.42	
St. Deviation	1.29		1.30	

[1]Scores on September, 1973 testing

Table 4

Math Computation Scores (in grade equivalents) of the StanAT[a]

for Minischool and Comparison Students

Score	Minischool Group		Comparison Group	
	N	%	N	%
3.1-3.9	3	15.0	5	25.0
4.0-4.9	6	30.0	3	15.0
5.0-5.9	5	25.0	5	25.0
6.0-6.9	2	10.0	3	15.0
7.0-7.9	2	10.0	3	15.0
8.0-11.2	2	10.0	1	5.0
Mean	5.48		5.54	
St. Deviation	1.89		1.89	

[a]Scores on September, 1973 testing

Table 5

Age of Deafness Onset for

Minischool and Comparison Students

Age	Minischool Group		Comparison Group	
	N	%	N	%
Birth	14	70.0	13	65.0
0-5 yrs.	1	5.0	5	25.0
5 yrs. +	1	5.0	1	5.0
Unknown	4	20.0	1	5.0

Table 6

Marital Status of Parents

for Minischool and Comparison Students

Marital Status	Minischool Group		Comparison Group	
	N	%	N	%
Married	14	70.0	13	65.0
Separated	3	15.0	0	0
Divorced	2	10.0	1	5.0
One Parent Deceased	0	0	3	15.0
Unknown	1	5.0	3	15.0

Table 7

Residential Status

of Minischool and Comparison Students

Residential Status	Minischool Group		Comparison Group	
	N	%	N	%
Home	12	60.0	10	50.0
Dorm	6	30.0	7	35.0
Foster Home	1	5.0	1	5.0
Unknown	1	5.0	2	10.0

Table 8

Hearing Status of Parents

of Minischool and Comparison Students

Deaf Parents	Minischool Group		Comparison Group	
	N	%	N	%
Deaf Mothers Only	0	0.0	2	10.0
Deaf Fathers Only	1	5.0	0	0.0
Both Parents Deaf	1	5.0	1	5.0
Both Hearing Parents	17	85.0	16	80.0
Unknown	1	5.0	1	5.0

Table 9

Previous School Attended

by Minischool and Comparison Students

Previous School	Minischool Group		Comparison Group	
	N	%	N	%
Kendall	7	35.0	8	40.0
Other School for Deaf	7	35.0	8	40.0
Public School	4	20.0	3	15.0
Unknown	2	10.0	1	5.0

Table 10

Age Deaf Education Begun

for Minischool and Comparison Students

Age	Minischool Group		Comparison Group	
	N	%	N	%
Under 2 yrs.	2	10.0	1	5.0
2-3	3	15.0	6	30.0
3-4	5	25.0	5	25.0
4-5	4	20.0	2	10.0
5 or older	5	25.0	3	15.0
Unknown	1	5.0	3	15.0

Data Collection

Data collection procedures and instrumentation are summarized below by Minischool goal area.

Academic Achievement

Twelve subscales of the Stanford Achievement Test (StanAT) were selected for comparison of Minischool and comparison group academic achievement. Pre- to post-test comparisons were not possible because of a substantive change in the StanAt's scaling as a result of major revisions and norm changes which went into effect during the Minischool project. Thus, only post-testing data for StanAt subtests are reported.

The StanAt was administered according to standard procedures to the entire student body of the MSSD in April 1976, approximately one month following the termination of the Minischool project. Administration of the testing and monitoring was managed by the MSSD Division of Developmental Education under the direction of the school's psychologist.

The 12 scales selected for comparing Minischool and comparison groups were: Vocabulary, Reading (parts A and B), Reading Comprehension, Math Concepts, Math Computation, Map Reading, Spelling, Language, Social Science, Science, and Listening Comprehension. These 12 subscales represent the core of StanAt subtests and, with the exception of the two reading subtests, scores were available for a majority of students in the two groups.

Cognitive Skills

One of the goals of the Minischool was development of students' general cognitive competencies in the areas outlined by Bloom's taxonomy. This goal area posed a significant problem for evaluation: identifying or developing a measure for assessing cognitive skills which did not rely on subject matter content and was only slightly dependent on students' English language competence.

Since no such measure could be found, the DORE undertook to develop some, designing two 40-item tests to measure competence in comprehension, application, analysis, and synthesis. One of the tests is described by its developer[15] (Rudner, 1976) as a quasi nonverbal Cognitive Skills Test (CST); the other is a verbal counterpart (VCST) which relies more heavily on use of language. While neither test has been fully validated, their psychometric characteristics suggest that they may be used for research purposes. Use for diagnostic or prescriptive purposes with individual students, however, would be inappropriate without further investigation and validation.

The CST and VCST were administered pre- and post-Minischool to both Minischool and comparison group students.

Affective Development

Valid, well-developed measures of constructs in the affective domain of human development are rare even for a hearing population, and are essentially nonexistent for hearing impaired people. Most available measures have low face validity for use with a hearing impaired sample because of reading requirements or, if at low reading levels, because of item content inappropriate to the age group of those being tested. Despite the lack of empirical evidence of validity, several affective measures of appropriate constructs and reading/content levels were selected for use in the Minischool evaluation: (1) Self Concept as a Learner (SCAL); (2) Intellectural Achievement Responsibility Questionnaire (IAR); and (3) Attitude Toward Self Questionnaire (ATS).

The SCAL was the only one of the the three which was used exactly as it had been developed for hearing persons. It contains four subscales which assess (1) problem solving ability, (2) task orientation, (c) motivation, and (d) class

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[15]Rudner, Lawrence R. The Development and Evaluation of a Quasi Non-Verbal Cognitive Skills Test. An MSSD project report, 1976.

membership. The 50-item elementary form of the questionnaire was administered to all students in the MSSD two weeks before and two weeks following the Minischool project.

The IAR was developed at Fels Institute as a measure of locus of control. Although some items were reworded to eliminate English idioms which deaf students often find difficult, the conceptual bases were retained. The IAR provides for two measures of locus of control: one which indicates the degree to which students accept responsibility for positive events in their lives and the other the degree to which they accept responsibility for negative events.

The adapted version of the IAR was administered to all MSSD students within two weeks of the onset and of the termination of the Minischool project. The scores so closely approximate the score distribution of normal hearing adolescents that it appears the adaptation did not significantly alter the integrity of the measure.

The ATS questionnaire, developed specifically as a self-concept measure for hearing impaired adolescents[16] (Clark, 1974), has four subscales: (1) attitude toward self as a task-oriented person, (2) attitude toward self as a student, (3) attitude toward self as a group participant, and (4) attitude toward self as a family member. The questionnaire was administered to all MSSD students within two weeks of the onset and of the termination of the Minischool project.

Communication Skills

Communication skills development was analyzed in terms of expressive and receptive abilities. Expressive communication in written English was evaluated through a contractual arrangement with the Linguistics Research Laboratory of

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[16]Clark, Norma K. Attitude Toward Self: A Potential Tool for Assessing Self-Concept of Hearing Impaired Adolescents. An MSSD project report, 1974.

Gallaudet College and will be published as a supplement to this report upon completion of the contract.

Expressive oral communication was evaluated in terms of speech intelligibility as rated by speech therapists. All minischool and comparison group students were tape recorded as they read ten sentences which included all major English speech sounds. Recordings were made on a Sony TC2520 tape recorder with Ampex tapes at 3 2/9 inches per second. Microphone and volume settings were the same for all students. Students were not identified by name on the recordings.

Two trained speech therapists independently rated the recorded speech production of students on the following five point scale:

1 = Speech is not intelligible.

2 = Speech is very difficult to understand; only isolated words or phrases are intelligible. People with no experience with the deaf would not comprehend.

3 = Speech is difficult to understand; however, people with normal hearing could understand the content if they listened very carefully.

4 = Speech is intelligible with the exception of isolated words or phrases.

5 = Speech is fully intelligible.

Receptive communication was evaluated by communications evaluation films produced by the National Technical Institute for the Deaf. Three films, one designed to assess lipreading ability, one for reception of manual communication, and one for reception of simultaneous communication were shown. All Minischool and comparison group students participated in the evaluation of the three receptive communication modes within two weeks of the onset of the Minischool project and shortly following the Minischool's termination.

Minischool Process Evaluation

In addition to the student outcome goals evaluated by these activities, the Minischool proposal outlined process goals for itself, specifically:

1. heavy emphasis on individualized learning activities;
2. systematic enforcement of a simultaneous communications policy.

As Charters and Jones[17] (1973) have pointed out, it is essential to document the occurrence (or nonoccurrence) of the projected process events. If evaluation of the student outcomes were to indicate lack of differences between Minischool and comparison group students, it would be inappropriate to assume that the processes claimed by the Minischool failed to produce projected differences; nonsignificant differences could be the result of the nonoccurrence of claimed process events.

In order to evaluate the occurrence of the claimed process events, classroon observations were conducted. The teacher observational system which was employed documents the type of teacher activity encountered during the observational session, the type of interaction observed, type of feedback provided to students, communication mode employed, and teacher activity level, and indicates whether interactions with students occurred with one student, a subgroup, or the entire class.

Evaluation Findings

Activity Profile of Minischool Teachers

As a means of describing, and to some extent documenting, the teaching style which students experienced during the Minischool, classroom observations of the Minischool teaching staff were conducted. These consisted of five-

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[17] Charters, W. W. and Jones, J. E. "On the Risk of Appraising Non-events in Program Evaluation." November, 1973, Journal Citation unknown.

second observations of individual Minischool teachers conducted at random intervals. A total of 195 such observations were made employing the Teacher Activity Profile (TAP), an observation schedule designed for use in the Minischool evaluation. It contains five general categories:

(1) Type of teacher activity

(2) Type of interaction

(3) Teacher feedback to students

(4) Mode of verbal communication

(5) Teacher activity level

Table 11 summarizes observations of the TAP's ten types of teacher activity, according to numbers of students involved. As the table indicates, during 22, or 11.3% of the 195 observations, teachers interacted with no students whatever, 80 (41%) with one student, 14 (7.2%) with a subgroup of from 2 to 19 students, and 146 (74.8%) with all Minischool students. Because more than one activity might be observed during any single observation, the grand total is in excess of the total number of individual observations.

The four most frequent activities observed were Listening or Observing, Explaining, Reading or Writing, and Asking Questions. The activity, Listening or Observing, tended to occur most frequently when the whole Minischool student body was involved. This finding may be an artifact of the team-teaching approach employed in the Minischool where one teacher might be directing student activity during any single observation cycle while other teachers listened or observed. In fact, three of the ten activities (Listening or Observing, Reading or Writing, and Recordkeeping) do not require student involvement. When these activities are excluded (see subtotals), the frequency of individual student involvement is 57, and 70 for the combined student body.

In general, it is apparent that much (41%) of the Minischool teachers'

activity and attention was directed to individual students and that little was devoted to discipline (0.5%), or record keeping (1.5%). These proportions are consistent with the original intent of the Minischool.

Table 12 summarizes observations of verbal interaction observed during individual observations. It is clear from the 112 observations that when observed teachers were engaged in some verbal interactions, the vast majority (86.6%) were with students on some academically related topic. On only five (4.5%) occasions were teachers observed to be interacting with people other than students, and on eight (7.1%) occasions, interaction with students was of an informative social nature.

Table 13 presents the manner in which teachers were observed to respond to students. Recorded responses were: (1) praise--an overt positive rewarding comment or behavior (e.g., "very good," "you're right"); (2) neutral acceptance--either words or behavior indicating acceptance, but without reward or other reinforcing characteristics ("that's an idea I hadn't thought of"); (3) ignoring--no apparent response, either verbal or behavioral; and (4) rejection--an overt negative verbal or behavioral response indicating disapproval (e.g., "no, that's not right," "don't do that").

Neutral acceptance was the most frequently observed form of response, occuring most often to student behavior and ideas. Praise was recorded in 12.7% of the responses and occurred most frequently to student's ideas. Rejection was observed in 17.9% of the feedback occurrences, primarily in response to ideas and behaviors. The low incidence of ignoring (8.2%) may be indicative of a high level of Minischool responsiveness, though normative or comparative date are not available to test this inference.

The mode of communication employed by Minischool teachers is summarized in Table 14. The communications policy developed and enforced by the Mini-

Table 11

Frequency of Types of Teacher Activities
Observed During 195 Classroom Observations
as Reported by Involved Students

Type of Teacher Activity	No. Students Involved	Interaction With One Student	With Subgroup of Students	With All Students	Total	%
Discussing	0	0	1	8	4	4.6
Lecturing	0	2	0	8	10	5.1
Explaining	0	33	4	27	64	32.9
Answering Questions	0	13	1	5	19	9.7
Reprimanding	0	1	0	0	1	0.5
Asking Questions	0	9	0	19	28	14.4
Quizzing or Testing	0	1	0	3	4	2.1
*Sub-total	0	59	6	70	130	69.3
Listening or Observing	13	8	7	66	94	48.2
Reading or Writing	7	12	1	10	30	15.4
Recordkeeping	2	1	0	0	3	1.5
*Sub-total	22	21	8	76	127	
TOTAL	22	80	14	146	257	
% (based on 195 observations)	11.3	41.0	7.2	74.9		

Table 12

Frequency of Types of Interaction
Observed During 195 Classroom Observations
as Reported by Students Involved

Type of Interaction	No. Students Involved	Interaction: With One Student	With Subgroup of Students	With All Students	Total	%
Social with Other Teachers	2	1	0	0	3	2.7
Social with Student(s)	0	5	0	3	8	7.1
Academic with Other Teachers	3	0	0	1	4	3.6
Academic with Student(s)	0	32	4	61	97	86.6
No Observed Interaction						
TOTAL	5	38	4	65	112	100.0
% (of observed interactions)	4.5	33.9	4.6	58.0	100.0	

Table 13

Frequency of Type of Feedback to Students
Observed During 195 Classroom Observations
As Reported by Type of Student Generated Stimuli

Type of Teacher Feedback	Student Ideas	Student Feelings	Student Procedures	Student Behaviors	Unspecified	Total	%
Praise	11	1	1	2	2	17	12.7
Neutral Acceptance	22	8	6	38	8	82	61.2
Ignore (no response	0	5	1	5	0	11	8.2
Rejection	9	2	5	8	0	24	17.9
TOTAL	42	16	13	53	10	134	100.0
% (of observed interactions)	31.3	11.9	9.7	39.3	7.5	100.0	

school was one of simultaneous use of voice and signs. As Table 14 indicates, Minischool teachers were observed to adhere to this policy with consistency. The high proportion (90.5%) of observations of the simultaneous mode is particularly significant in that observations did not discriminate whether communication occurred between teachers or students or indicate the hearing status of those involved.

Table 14

Frequency of Four Modes of Teacher Communication Observed During 195 Classroom Observations

Mode of Communication	Frequency of Occurrence	%
Voice, no signs	7	5.5
Signs and voice	114	90.5
Signs, no voice	5	4.0
TOTAL	126	100.0

The final category of observations, Teacher Activity Level, is reported in Table 15. The three levels reported are observers' ratings of the degree of activity or movement exhibited by teachers during the observation. A rating of "very active" indicates energetic movement, a rating of "active" indicates that movement occurred, and a rating of "inactive" indicates little or no observed motion, perhaps only standing or sitting. The modal (53.8%) rating for Minischool teachers was "active," followed by "inactive" (34.9%).

Table 15

Level of Activity of Teachers During

195 Classroom Observations

Teacher Activity Level	Frequency	%
Very Active	12	6.2
Active	105	53.8
Inactive	68	34.9
No Data	10	5.1
TOTAL	195	100.0

Student Outcome Goals

Table 16 summarizes Minischool and comparison group achievement on twelve subtests of the StanAT. T-test comparisons of the two groups on each of the twelve subtests yielded t-values of less than 1.0 for all variables which indicates no significant differences between the two groups on any of the subtests.

Table 17 and 18 summarize the two groups' pre- and post-test performance on the tests of cognitive skills (CST and VCST). Average overall gains for the two-year period are slightly greater for Minischool students than for the comparison group though none of the scale or total score differences approach statistical significance.

Tables 19, 20, and 21 summarize Minischool and comparison group students' scores on pre- and post-tests of the three affective measures employed in the evaluation, as well as student gains over the two-year period on each of the

subscales. Minischool students made a slightly greater overall gain on all three of the affective measures, though differences between the two groups were not statistically significant for any of the subtests of total scores.

Results of receptive communications and oral expressive skills are summarized in Table 22. The average student change in lipreading and intelligibility was slightly but not significantly greater among Minischool than comparison group students, while the opposite was true for receptive manual and simultaneous communications.

Table 16

Minischool and Comparison Group Academic Achievement on Twelve Subscales of the Stanford Achievement Test

Academic	Minischool N	Minischool $\bar{X}$	Minischool S.D.	Comparison N	Comparison $\bar{X}$	Comparison S.D
Vocabulary	19	134.16	21.35	19	137.05	35.36
Reading (A)	5	134.00	3.08	4	134.50	3.32
Reading (B)	5	128.00	6.78	4	128.00	4.97
Reading Comprehension	19	153.32	19.86	19	155.63	27.55
Math Concepts	19	163.79	24.29	19	171.68	25.25
Math Computation	19	173.16	17.76	19	177.26	21.53
Map	19	158.05	24.01	19	164.79	29.43
Spelling	19	173.47	14.55	19	175.42	13.98
Language	13	166.08	17.97	15	167.80	24.21
Social Science	19	159.47	20.39	19	163.11	25.59
Science	19	147.53	28.62	19	153.89	31.46
Listening Comprehension	15	127.53	15.52	15	129.60	21.86

Table 17

Minischool and Comparison Group Pre-Test, Post-Test
and Two-year Gain Scores on a Quasi-non-verbal Test of Cognitive Skills

Quasi-non-verbal Cognitive Skills Test	Pre-test						Post-test						Student Gains					
	Minischool			Comparison			Minischool			Comparison			Minischool			Comparison		
	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D
Comprehension	19	6.47	1.43	19	7.05	1.87	18.	8.06	1.51	18	8.50	1.25	18	1.39	1.58	18	1.50	0.86
Application	19	6.53	2.29	19	6.79	2.18	18	7.50	1.69	18	7.39	2.00	18	0.67	1.91	18	0.61	1.69
Analysis	19	5.95	1.84	19	6.37	2.11	18	6.83	1.82	19	6.83	1.79	18	0.78	1.77	18	0.33	1.75
Synthesis	19	4.16	1.71	19	4.37	1.67	18	5.44	2.15	18	5.72	1.97	18	1.33	2.30	18	1.33	1.88
TOTAL	19	23.11	5.85	19	24.58	6.21	18	27.83	5.88	18	28.44	5.97	18	4.17	5.29	18	3.78	3.30

Table 18

Minischool and Comparison Group Pre-Test, Post-Test
and Two-year Scores on a Verbal Form of a Cognitive Skills Test

Verbal Form of a Cognitive Skills Test	Pre-test						Post-test						Student Gains					
	Minischool			Comparison			Minischool			Comparison			Minischool			Comparison		
	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D
Comprehension	19	4.95	1.87	19	5.68	2.00	16	6.38	1.75	17	6.18	2.43	16	1.19	1.79	17	0.29	1.72
Application	19	4.63	2.95	19	4.79	2.53	16	6.44	2.16	17	6.00	2.76	16	1.63	1.45	17	0.94	2.54
Analyses	19	4.63	1.61	19	5.11	1.85	16	5.13	1.82	17	6.00	2.29	16	0.31	2.12	17	0.88	1.57
Synthesis	19	5.89	1.71	19	5.47	2.32	16	6.56	1.50	17	5.59	2.55	16	0.50	1.97	17	0.12	2.06
TOTAL	19	19.79	6.48	19	21.05	7.42	16	24.50	5.89	17	23.76	8.52	16	3.63	3.85	17	2.24	5.11

Table 19

Minischool and Comparison Group Pre-Test, Post-Test and Two-year Gains on Self-Concept as a Learner Scales

Self Concept as a Learner	Pre-test						Post-test						Student Gains					
	Minischool			Comparison			Minischool			Comparison			Minischool			Comparison		
	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D
Motivation	17	30.06	2.41	19	29.84	3.20	18	29.22	4.69	19	31.21	3.51	16	-1.19	4.65	19	1.37	4.57
Task Orientation	17	28.82	4.14	19	29.74	3.71	18	29.72	4.97	19	30.68	4.46	16	0.63	4.90	19	0.95	3.70
Problem Solving	17	29.59	4.09	19	30.37	3.15	18	32.06	4.51	19	31.21	3.31	16	2.50	4.49	19	0.84	3.24
Class Membership	17	23.47	3.91	19	23.95	4.31	18	26.22	3.12	19	25.47	3.57	16	3.13	4.72	19	1.53	3.26
TOTAL	17	111.94	11.52	19	113.90	11.55	18	117.22	12.52	19	118.58	10.69	16	5.06	11.50	19	4.68	8.31

Table 20

Minischool and Comparison Group Pre-Test, Post-Test and Two-year Gain Scores on Attitude Toward Self Scales

	Pre-test						Post-test						Student Gains					
	Minischool			Comparison			Minischool			Comparison			Minischool			Comparison		
	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D
Attitude Toward Self as a Task-Oriented Person	14	22.43	3.37	16	24.19	3.15	16	24.00	2.59	12	1.33	2.49	12	1.33	3.96	15	0.93	3.35
Attitude Toward Self as a Student	14	23.86	3.01	16	25.00	3.48	16	24.81	3.67	18	24.11	3.46	12	0.08	3.65	15	-0.80	3.65
Attitude Toward Self as a Group Participant	14	29.71	3.41	16	29.94	5.37	16	29.19	3.35	18	29.89	3.92	12	-0.17	4.35	15	-0.13	4.56
Attitude Toward Self as a Family Member	14	15.71	1.94	16	16.56	2.56	16	16.5	2.81	18	15.78	1.59	12	0.58	3.09	15	-0.4	2.44
TOTAL: Attitude Toward Self	14	91.71	8.63	16	95.68	11.95	16	94.50	8.66	18	94.44	9.20	12	1.83	9.73	15	-0.13	9.36

Table 21

Minischool and Comparison Group Pre-Test, Post-Test
and Two-year Gain Scores on the Intellectual Achievement Responsibility Questionnaire

Intellectual Achievement Responsibility	Pre-test						Post-test						Student Gains					
	Minischool			Comparison			Minischool			Comparison			Minischool			Comparison		
	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D
Responsibility for Positive Events	15	10.93	2.55	19	11.05	2.57	18	13.17	3.15	19	10.95	2.64	15	1.73	3.37	19	-0.11	2.62
Responsibility for Negative Events	15	8.87	2.97	19	8.47	2.85	18	10.61	2.40	19	9.79	2.44	18	3.56	4.91	19	1.32	2.93
TOTAL	15	19.80	4.87	19	19.53	4.74	18	23.78	4.77	19	20.74	4.12	15	3.47	6.74	19	-0.21	5.25

Table 22

Minischool and Comparison Group Pre-Test, Post-Test and Two-year Gain Scores on Communications Measures

Communications	Pre-test						Post-test						Student Gains					
	Minischool			Comparison			Minischool			Comparison			Minischool			Comparison		
	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D
Lipreading	18	17.83	9.87	15	18.87	11.46	18	23.55	12.21	14	22.07	12.85	18	5.72	8.39	14	3.00	4.86
Manual Communication	18	38.94	7.33	14	36.79	7.89	18	41.72	5.56	14	40.29	6.47	18	2.79	6.35	14	3.5	3.30
Simultaneous Communication	18	36.50	7.59	14	33.64	12.39	18	43.28	6.52	14	41.00	7.11	18	6.78	4.72	14	7.36	6.39
Intelligibility	16	2.87	1.55	13	2.42	1.51	18	2.75	1.47	17	1.97	1.23	15	-0.03	0.05	12	-0.08	0.04

Conclusion

Research comparing one teaching approach with another typically fails to prove that one approach produces the greater student achievement. In a sense, the data reported here are consistent with this tradition. This is not to say that the Minischool approach may not in fact be superior to others, but rather implies that either the design, measurement, or statistical approaches were not sensitive enough to differentiate program effects.

The Minischool was designed to have the greatest impact on students' affective growth and development. Unfortunately, measurement of affective constructs is primitive at best even with the normal population. The problems of construct measurement--affective or otherwise--added to the special language and reading level constraints imposed by deafness, make sensitivity to program differences an even greater measurement problem. These factors should be weighed heavily when interpreting the Minischool evaluation data.

Throughout the data, though particularly among the affective measures, Minischool students tended to demonstrate greater measured growth than comparison students. It is possible that if the sample had been large enough to permit use of statistical procedures which examine multiple dependent variables, differential effects in favor of the Minischool would be detected. In fact, several exploratory uses of multiple regression procedures with student gain scores on affective measures did indicate that program (i.e., Minischool vs. normal MSSD academic program) was one of several significant factors in the prediction of growth. However, the contribution, although statistically significant, was not large in terms of the additional variance for which it accounted. The predictive relationship was in all cases in favor of the Minischool.

This evaluation of the Minischool, as with most others conducted by MSSD, emphasizes the critical need for development of improved assessment

procedures designed specifically for the hearing impaired population. Until then, it appears likely that research and evaluation projects such as this one will continue to yield suggestive but inconclusive findings which must be interpreted with a series of qualifying assumptions.

Observational and "incidental" data suggest that the Minischool was successful in achieving its process goals. Data reveal a high incidence of "individualizing." The curriculum and activities reported by the Minischool faculty illustrate this aspect of the Minischool more effectively than the figures reported in Tables 11 through 15.

The potential of the Minischool approach as an effective management system was indicated in some incidental data which became available as a result of another DORE project. During the 1975-76 school year, the MSSD's Division of Instruction undertook a strategy to develop student vocabulary through a "word for the day" approach. Pre-tests and post-tests of vocabulary knowledge indicated vast superiority of Minischool students over students in the regular MSSD academic program. For example, nine of the ten MSSD students who achieved 100% on the post-test were Minischool students. This incidental finding may suggest that somehow the Minischool more consistently implemented the vocabulary development strategy than did the regular instructional teams in the MSSD. This finding, which must be interpreted as anecdotal, may however indicate the potential of the Minischool as a student or program management approach.

Recommendations

Training

1. A team-building workshop should be held which would stress

   a. listening skills,
   b. expectations and role clarification,
   c. acceptance and delivery of criticism,
   d. the "psychological contract" necessary in working together,
   e. identification of areas of philosophical differences.

2. Later, there should be a follow-up workshop for feedback and further discussion. In addition, open and honest reviews should be held at regular intervals.

3. The team should include a counselor, resident advisors, and teachers of some elective as well as required subjects.

4. If the entire school is organized on the multi-unit plan, the staff should have some choice as to which unit they join.

5. There should be a diversity of teaching styles represented, not only to provide different models for students, but also to permit a balance of creative tension which is healthy and motivating.

6. The team should include at least one member with expertise in the content areas chosen for inclusion, although this is by no means the only member who will provide student instruction in that area. The content specialist is invaluable for maintaining structure, and for consultations about various teaching methods.

7. There also should be team-building activities with the students, who should be given time and opportunity to understand the concept of team management.

Evaluation

1. Informal evaluations should take place at the end of each unit or portion of the program. We held two- or three-hour critical discussions following two of our units which we found very helpful.

2. Students should be given a chance to evaluate the program frequently, perhaps even daily, so that instructors may adjust their curriculum and presentation methods.

3. It does not seem necessary or particularly desirable to have control groups in an individualized program. Concern should be with how well each student is progressing as compared with his or her previous performance.

4. It is of utmost importance that the skills and knowledge each student possesses be known before the curriculum or major style of presentation is selected. This means that skills, particularly thinking or cognitive skills, should be tested at the outset. If students are functioning primarily on a knowledge level[18] and the activities presented require synthesis skills, both teacher and students are doomed to failure.

Planning and Curriculum

1. Team management does not require interdisciplinary curriculum. Interdisciplinary curriculum was our choice.

2. Another minischool might not require the same amount of planning time. Our staff had to plan the two-year program as well as to write and adapt curriculum.

3. If possible, spending should be limited until the program has been functioning for several weeks. We purchased some equipment for which we really had no pressing need.

4. If an interdisciplinary approach is chosen, as many content areas as possible should be related to one another in some clear way. This, however, does not mean that unrelated skill work should be excluded altogether if students need it. The total educational plan should bring the subjects together so that they add up to a cohesive experience.

5. If an interdiciplinary approach is chosen, most of the counseling topics should be related to the core curriculum.

6. It is NOT recommended that teaching and developing curriculum occur simultaneously. Rather it seems preferable to identify student skill levels and learning styles and have a comprehensive list of resources which can be pulled and adapted to the overall plan as it unfolds.

7. In our experience, if the developed curriculum was too structured it was not always successful. Adaptations and careful planning were more likely to bring success.

8. If an interdisciplinary curriculum is chosen, it is essential that this be made clear to students. If they have been accustomed to isolated and separate subjects such as English, social studies, mathematics, and so on, these should be identified within the program so that they will be reassured that they are still being taught the necessary and traditional subjects.

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[18]We chose to use Bloom's taxonomy because our staff was familiar with the terminology. However, any number of cognitive models would function just as well. We would stress that with the model you choose you allow for divergent thinking.

9. All the resources, human and otherwise, within a school and community, should be used. In many instances, the secretaries and support staff may be able to provide expertise where teachers lack it.

10. Having books, encyclopedias, magazines, and other resources available in the classroom is most helpful. The flow of information, or the discussion, can continue while these are being used. There is no need to get up and go elsewhere to find books.

11. Games and simulations should be far more frequently used. We did not use them often enough, but found them very motivating when we did.

12. Activities stressing divergent thinking should be among the most important. Creative thinking is not limited to bright students. Students can sometimes develop activities as well as teachers, and should at least have some choice of how to express what they have learned.

13. The case studies approach proved very useful for us, especially in those situations where teachers were developing curriculum and teaching simultaneously, since this approach is easier to individualize.

Skills Classes

1. The skills classes should be separate from the interdisciplinary curriculum but use much of that content.

2. The concentration should be upon reading and writing development.

3. Communication therapy should be available for all students and provided according to individual needs.

4. Curriculum content should be used in auditory training. We found it highly motivating.

5. Teachers other than the communications teacher should be used as motivating influences in auditory training.

6. Some auditory training should take place in groups. Peer interaction provides incentive for both group amplification and personal hearing aid use.

7. Math work, in our situation, was most successful when teacher-led in small groups.

Advising and Goal Setting

1. Each teacher must act as an advisor, assuming responsibility for a small group of advisees. The advisors help students develop goals and educational plans, and bring information about the plans and goals from other team members back to the students.

2. Students, particularly those of junior high and high school age, should have as much say as possible about the system. Students should also have some choice in the selection of their advisors.

3. The advisor should have a formal recordkeeping system which is kept up-to-date on each advisee.

4. The goal attainment score mentioned in the Overview of our report should be considered for use as it could be most helpful. A team would want to develop guidelines during the planning phase, agree upon a range of options or continuum of objectives, and follow them. This continuum should include both content and affective goals. The Goal Attainment Scaling System which we used was very helpful for specific content objectives.

5. Each team member must be prepared to provide information about each student with whom he or she has regular contact.

Scheduling and Student Groupings

1. Students should be scheduled into a minischool for blocks of time during the day, or the minischool should have total coordination of students' schedules. A school should not have only one minischool within a total program.

2. Students should have some choice in selecting the minischool or unit in which they participate.

3. Students should be heterogeneously grouped for a minischool. Such a grouping permits students to get the full benefit from divergent thinking and problem solving activities. It also assists in building independence and essential coping behaviors. Smaller homogeneous groups can be arranged for some activities such as skills classes without stigmatizing individuals.

4. Teachers should have a heterogeneous group of students as advisees.

Field Trips and Out-of-School Experiences

1. As many out-of-school experiences should be scheduled as possible. Some students' most vivid memories will be of trips taken.

2. Students should have more choice in the decision to take a trip, where to go, and how to finance it.

3. Trips should be as personalized as possible. That is, students should have opportunities to stay with residents of the area, in homes of friends of teachers, etc. This cuts down expenses and promotes a native point of view.

4. If possible, some teachers should visit the location in advance of the trip.

5. Students should have some work experiences (either volunteer or paid) which relate to the major curriculum areas being studied. We regret that we were unable to arrange this.

Other Recommendations

1. Communication lines should be kept open and active between the mini-school and the other programs in the school.

2. Various methods for group and individual parent interaction should be devised.

3. The counselor and dorm advisor on a team should counsel and advise the same students in the regular school program.

4. The coordinator or supervisor should be responsible for the management of only one team or unit.

Recommendations Specific to Each Curriculum Unit

Unit 1: Students should be adequately prepared for the interdisciplinary nature of the program. This is critical to the success of such a program.

More time should be provided for individual and group activities which would permit both student evaluation and a feeling of getting to know each other.

Unit 2: Students should be shown clearly the separate disciplines within the interdisciplinary program.

Unit 3: Topics should be prepared which can reasonably be covered in the allotted time. Our introduction to the earth and the universe, climate, regions, and natural resources was far too ambitious for the time we had.

At least four weeks should be allotted for the case studies.

As many "hands-on" activities as possible should be provided.

Unit 4: Students should be given an opportunity to study comparative governments using the countries from the case studies of Unit 3.

A conceptual pre-test (both verbal and nonverbal) should be used, and could be used profitable for all major curriculum units.

If possible, discuss a political scandal during this unit on political systems. It is sometimes difficult to make this interesting for students and relate it to their lives if they are too young.

Unit 5: Cultures should be a theme throughout all units. Culture is a most difficult term to define, but the meaning could emerge gradually this way. We did not offer a separate unit on culture.

Change should also be integrated into all content areas.

Studies and projections of change can offer marvelous opportunities for both self-inspection and creative thinking. Change in the students themselves should be stressed.

A formal curriculum unit is not necessary to stress or deal with change. The total educational program should prepare students to accept and understand themselves, accept and understand others, and accept and cope with change.

References

Charters, W. W. and Jones, J. E. "On the Risk of Appraising Non-events in Program Evaluation." Educational Researcher, 2(11), 5-7.

Clark, Norma K. Attitude Toward Self: A Potential Tool for Assessing Self-Concept of Hearing Impaired Adolescents. An MSSD project report, 1974.

Rudner, Lawrence R. The Development and Evaluation of a Quasi Non-Verbal Cognitive Skills Test. An MSSD project report, 1976.

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